

# AMATEUR RADIO

VOL. 53, No. 8, AUGUST 1985

JOURNAL OF THE WIRELESS  
INSTITUTE OF AUSTRALIA



37th Annual Remembrance Day Contest — 17th & 18th  
August 1985



NEW

# TRANSCEIVER REVIEWS

The August issue of Electronics Today will see the launch of a new series of transceiver reviews. ETI will do its own tests and publish the measured specs.

## ALSO IN THE AUGUST ISSUE:

- ★ How good is your transceiver?
- ★ Getting started on the higher frequencies
- ★ Some shortwave stations being forced to use allocated frequencies
- ★ Aussat manoeuvres ahead of launch



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On 25-26th October 1985, the first National Fox Hunting Championship will be held at the Wagga Convention, in conjunction with the WIA's 75th Anniversary. The winning team will hold the trophy, featured on the cover, for twelve months. Inset: The late William McInnes Moore VK2HZ, Bill, a life member of the institute, saw service in the RAAF as a wireless operator. See page 29 for a tribute to Bill.

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## EDITOR'S COMMENT

### LOOSE ENDS

From time to time there are occasions when your Editor can actually spare an hour or so for a little listening on the bands, maybe even making a contact or two. It should be compulsory for all of us, on the bridge of the good ship 'Amateur Radio', to make this effort to keep in touch. So for this month of August 1985, the occasion of the 38th Remembrance Day Contest, I thought I might mention a few unrelated items heard on the air, or which come to mind.

The first is AR's print size, which we have to admit has been a little on the small side for the last year or so. There is a continuing necessity to put a great deal of material into a limited amount of space. But improvements are already being made by our skilled typesetters. It is possible with computerised equipment to fit larger type into the same space by cutting down on spacings between letters and words etc, and this

condensing process is well under way. But if you really want larger type and a bigger magazine there is one certain way to help. Enlist a new member (or two, or more!). Our budget is set by our subscription income, and the more there is the more efficiently we can function. This will become even clearer when our promised article on the production of the magazine appears in print soon.

Finally, if there are some of you in North Queensland or the Top End who would like an opportunity to 'earbash' the Editor, your chance is coming. My XYL and I are planning a flying trip up north during the August/September school holidays. We look forward to hearing you on 2m FM, with perhaps the occasional 'eyeball'.

Bill Rice VK3ABP  
Editor

AN



## WIA Seventy Fifth Anniversary



Letter of congratulations from overseas societies, presidents, etc. are arriving daily, listed here are those received to date:

#### NZART

IARU Region 2

IARU Headquarters

Radioklub der Deutschen Demokratischen Republik

Radio Society of Bermuda

Grenada Amateur Radio Club

Israel Amateur Radio Club

Chinese Radio Sports Association

IARU Region 3

OVSV Austria

IARU President

RSGB

Amateur Radio Society Bahrain

Canadian Radio Relay League

South African Radio League

CRAS of El Salvador

Radio Club of Chile

Radio Club Venezuela

### 75TH ANNIVERSARY DINNER

Arrangements for this important function are well in hand, a registration form is inserted in this issue to facilitate booking arrangements. It looks as if the 75th Anniversary dinner at the Southern Cross Hotel on 9th November will truly be a night to remember in the long history of our Institute. At this time the official guest list is growing, to date acceptances have been received from:

The Honorable Michael Duffy, Minister of Communications

Richard Butler, Secretary General of the ITU

Richard Baldwin WIRU, President of the IARU

Carl Smith WOBWJ, Vice President of the IARU Region 2

Pedro Seiderman YV3BPG, President of the IARU Region 2

David Rankin VK3QV, Chairman of the IARU Region 3

Masayoshi Fujioka JMIUXU, Secretary of IARU Region 3

John Alloway G3FKM, Secretary of IARU Region 1

### MEMBERSHIP

In the January issue of Amateur Radio it was announced that each 75th new member during 1985 would receive a quartz multi function clock for their shack. Listed below are the recipients to date of these clocks:

C W Purvis VK3DEN

D Perno VK4BDP

A R Clark VK3CAC

K J Chipper VK6ZEB

D H James L20348

J C Kemp L50129

As the year progresses more names will be added to this list, hopefully many more.

Next month we will be listing of proposers of new members, the computer will be selecting a separate listing of proposers of members and gifts will be despatched. Keep up the good work!

### BOOK PACKS, THE 75TH ANNIVERSARY and THE YEAR OF YOUTH

The June issue on this item has generated a great deal of interest and mail to the Federal Office. In order to satisfy many of the questions being asked, listed below are the contents of each book pack. (Items may change subject to availability).

\$15 pack. P&P Paid.

*Into Electronics (NSW Education Service)*

*Novice Electronics*

*100 Basic Projects*

*Guide to Amateur Radio (RSGB)*

*WIA Book 1*

*WIA Call Book*

*Radio Amateurs World Atlas*

\$30 pack. P&P Paid.

The following plus the \$15 pack:

*Basic Training Manual (NZART)*

*Hints and Kinks (ARRL)*

*Weekend Projects (ARRL)*

\$50 pack. P&P Paid.

The following plus the \$30 pack:

*ARRL Handbook (ARRL)*

*Maidenhead Locator World Atlas*

Each pack will contain information on amateur radio in the form of letters, leaflets and posters.

When applying for a book pack please ensure that you enclose, in your request to the Federal Secretary, details of the Club/Group making the presentation and the recipients. It must be stressed that the value of these packs bears no resemblance to retail prices.

### POSTER COMPETITION

The 75th Anniversary sub-committee has awarded the prize for the poster competition to V Marsden VK2EVM. Hearty congratulations.

### PRE STAMPED ENVELOPE

The success of the envelope released by Australia Post to celebrate the 75th Anniversary was extremely good. The displays put on by Divisions and clubs in Post Offices was not only appreciated by the general public

but by Australia Post also. The envelope has also generated considerable interest overseas, mail from amateur radio collectors has been heavy and news to date is that the envelope will be featured in QST as well as Region 3 news. It has been indicated to the Executive that this envelope has been one of the most popular ever issued!

## 75TH AWARD

This Federal award, being run by the Victorian Division, is still creating considerable interest both at home and overseas. Our awards manager for this Anniversary event, Jim Linton VK3PC, has advised the Executive that, to date, some 200 of the awards have been issued. To remind you, your membership number is printed each month on the label of your copy of AR. If you have not qualified yet there is still plenty of time as this award runs until the end of the year, the certificate itself is well worth the effort to obtain. The rules for the award appeared in the March issue of AR, page 52.

## VK75A

The QSL manager for this special Federal call sign, Des Clark VK3DES, now has supplies of the special QSL card and is busy catching up on the 6000 contacts to date. If you have not been lucky enough yet to have had



## RADIO AMATEURS WIN MINISTER'S TRIBUTE ON 75TH ANNIVERSARY

The Minister for Communications, Mr Michael Duffy, recently paid tribute to the work of the Wireless Institute of Australia which this year celebrates its 75th anniversary.

On 22nd May 1985 Australia Post issued a special stamp envelope marking the occasion.

"Amateur radio is usually looked as a leisure-time hobby," Mr Duffy said, "but in times of war and emergencies such as bushfires, the operators have proved truly professional in the help they have been able to give."

The WIA was formed in 1910 and is the first and oldest radio society in the world. Its membership includes operators of all ages, both sexes, the handicapped and the disabled.

Mr Duffy said 1985 was of special significance in the history of Australian communications because of the imminent launch of the AUSSAT communications satellites.

"It is not generally known that fifteen years ago a team of radio amateurs in Melbourne built a satellite and had it launched in the US," Mr Duffy said.

The satellite was named OSCAR 5 (OSCAR is the acronym for Orbiting Satellite Carrying Amateur Radio) and although it operated for only forty-four days it demonstrated that radio amateurs had the expertise and capability to activate a spacecraft radio beacon by transmitting command signals from earth.

"These days ordinary citizens around the world use amateur radio equipment and satellites to communicate with each other," the Minister said.

Mr Duffy said that in its administrative/regulatory roles his Department had a close relationship with the WIA which represents some 16,000 amateur radio operators.

"The two organisations sometimes disagree on matters concerning use of the radio frequency spectrum, but the Department values its links with the WIA and the advice it puts forward."

Press Release No 37/85 - 23rd May 1985 from Minister for Communications.

|                            |    |
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| David V Furman V13DVF      | 8  |
| John E C Heaver VK3VNQ     | 9  |
| Mary Ann Crider WA3HUP     | 10 |
| Ruthanna Thomas WB3CQN     | 11 |
| Keith Russell G4RZQ        | 12 |
| Steve Ireland VK5ADZ       | 13 |
| John K O'Brien VK1NCO      | 14 |
| A T Menhant VK4WAT         | 15 |
| Jim Thornton VK2VRT        | 16 |
| L A James VK2EDQ           | 17 |
| Colin Davidson VK2JCO      | 18 |
| Brian H Laddie VK2DLH      | 19 |
| C A Devonshire VK4NRG      | 20 |
| David Jewell VK0Dj         | 21 |
| Bill Martin VK2COP         | 22 |
| Steve Pierrehumbert VK3XSP | 23 |
| E K Williams VK4VDD        | 24 |
| Michael Wilson VK3VMW      | 25 |
| Frank James VK3Cfj         | 26 |
| Keith F Turk VK2PKT        | 27 |
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a QSO, there is still time. During August the VK4 Division will be operating the special call sign, followed in September by the VK1 Division.

## WORLD AMATEUR RADIO DAY-18 APRIL 1985

As a result of the Institute's listening stations on the 10, 18 and 24 MHz bands, to increase the use of these bands, the following stations have been selected from the many "heard" during this Special Day:  
VK4NL, VK2DVU, VK3AMB, VKIZU, VK7CH, VK6WT, VK5GZ, VK2AZO, VK3ZM, VK4NR.

These stations will receive, in the very future, 75th Anniversary gift packs.

## CW CONTEST RESULT

The results were published in the July issue of AR. The winner of this event P Alexander VK2PA was presented with the Presidents Cup during the Oley Region Field Day at Port Macquarie over the June long weekend. The presentation of the special 75th Anniversary prize for this inaugural event, the William Willis specially mounted and engraved Morse key, will take place at a later date this year.

All entrants to this special CW event this year have received their certificates.

AB

|                          |    |
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| A R Jackson VK7NBF       | 72 |
| F J Sullivan VK3ZJ       | 73 |
| Ben Bailey N4IZ          | 74 |
| John Howden VK3BQ        | 75 |

## THANKS

I wish to convey my appreciation and thanks for the prizes which arrived recently in connection with the 75th Anniversary subscription renewals, and congratulate the Institute on the activities undertaken to celebrate the Seventy Fifth Anniversary.

73.

Jim Oliver VK7JO

Re my receipt of the gift package to be followed with my receiving the clock. These moments in amateur radio I shall not forget. Very greatly appreciated and sincere thanks to those concerned.

Best of 73,

Yours faithfully,

H R Hodgson VK3AP

Many thanks for your advice re my membership of the Institute.

I also wish to convey my thanks to the Institute for the presentation clock which came as a complete surprise, and is very much appreciated.

Yours sincerely,

C W Purvis VK3DEN

A note of thanks and appreciation for your letter of the 14th June 1985 and the quartz clock received in the mail.

Just how much appreciation may, perhaps, be judged if I tell you a little about myself: having been "forced" into a somewhat early retirement by the widespread unemployment in the building industry, I took the opportunity, of extra leisure time, to fulfill a lifelong ambition and become an amateur and whilst I have acquired some "necessary" items of equipment the budget certainly does not run to such items as clocks to date my shack clock consisted of an old resurrected digital watch with a smashed case!

However, I have received a great deal of enjoyment from my relatively short sojourn in the amateur ranks and as a member of the WIA.

To receive a gift in addition to the pleasure of membership makes me feel very fortunate indeed.

So thanks again, and let me just add that here is a member who is very appreciative of the time and effort expended by the Executive, Officers etc, of the WIA, on members' behalf

Dmitri Perno VK4BDP

Yours sincerely,

# AUGUST 1985

| SUN  | MON   | TUE  | WED                            | THU                             | FRI  | SAT   |
|--|---|--|--------------------------------|---------------------------------|--|---|
|  |   |  |                                | 1<br>National Day - Switzerland | 2<br>Independence Day - Macedonia  | 3<br>Norice Revision - VK3  |
| 4<br>1985 World Police/Fire Games - WPF, begins<br>Norice Revision - VK3<br>Sun City to Surf - VK2 | 5<br>Bank Holiday - VK3<br>Picnic Day - VK8 | 6  | 7                              | 8                               | 9  | 10<br>AOCP Revision - VK3<br>European CW Contest  |
| 11<br>1985 World Police/Fire Games - WPF, ceases<br>AOCP Revision - VK3<br>European CW Contest     | 12  | 13<br>Brisbane Show Day  | 14<br>Brisbane Show Day        | 15<br>Independence Day - India  | 16   | Ballarat ARG Field Wind<br>KCI CW Contest<br>ED Contest<br>SARTG RTTY Contest                                     |
| 18<br>Ballarat ARG Field Wind<br>KCI CW Contest<br>ED Contest<br>SARTG RTTY Contest                | 19  | 20<br>Anniv of 1st King crowned in Hungary<br>DOC Examinations<br>St Stevens Day | 21<br>Deadline for copy for AR | 22                              | 23<br>School Break up - VK1<br>School Break up - VK2<br>School Break up - VK3<br>School Break up - VK6 | 24<br>All Asian CW Contest<br>GARTG RTTY Contest  |
| 25<br>All Asian CW Contest<br>GARTG RTTY Contest   | 26  | 27<br>General Meeting - VK5<br>Movie Theory & CW Classes - VK3                   | 28                             | 29                              | 30<br>School Break up - VK5<br>School Break up - VK7<br>Towaville ARC Convention                       | National Day - Malaysia<br>Towaville ARC Convention<br>VK Income Tax Return Due<br>VK5 RTTY Art Competition close |

## AURORA SCATTER - ANTARCTICA

Don Richards VK2BXM

The Ski's Inn, Sackville Road, Ebenezer, NSW. 2756

Between November 1984 and March 1985, the Research Vessel, the Dick Smith Explorer, which is owned by the Oceanic Research Foundation, voyaged from Sydney to Commonwealth Bay, Antarctica, and back again. She spent five weeks moored in the Boat Harbour, Commonwealth Bay, the site of Douglas Mawson's hut which was erected by his party during the 1911-1913 expedition.



Commonwealth Bay is almost directly south of Tasmania and about 2000 nautical miles from Hobart.

During the voyage and whilst moored, the writer carried out experiments on 2m SSB, aimed at using auroral scatter, to make contacts with Australian amateur stations. The call sign which was allocated to the expedition AXOPB (Project Blizzard) was used.

Equipment was a TS9130, all mode 2m transceiver courtesy Trico-Kenwood, a Mirage 160W linear amplifier and pre-amplifier courtesy ATN Antennas, a 2m horizontal dipole made at short notice by Brian VK7BP and a 10 element, 2m Yagi loaned by Ross VK2ZRU as arranged by Dick VK2BDN.

For the voyage south and return the dipole was used and the Yagi was used whilst moored in the Boat Harbour.

Each night, during the voyage, (6.12.84-24.12.84 and 6.2.85-20.2.85) from 2100UTC on 144.100MHz, for about 15 minutes, slow Morse was sent calling CQ with identification AXOPB. The CW was interspersed with voice, sent and listened at about 2 minute intervals.

The same procedure applied whilst moored between 30.12.84 and 5.2.85, only the Yagi was used. The Yagi was pointed at the east coast of

Australia for about 15 minutes, then changing direction to the Perth-Albany area.

I was also operating HF daily and would come up immediately on 2m if there was any detection of what sounded like auroral effect on the HF bands. At other odd times through the day and night I would often send and listen.

Arrangements had been hurried before departure but word got through to Pierce VK2APQ, the broadcast, Gordon VK2ZAB and later to Art VK6ART, as to what the programme was.

Good contacts had been made before leaving, with amateurs on sideband in Melbourne and Hobart and it was possible to hold the Hobart repeater for about 120 nautical miles while moving south. For the rest of the time nothing was heard until we were within range of Tasmania again.

So far, a report has been received from Greig VK7KJ, who heard slow Morse on 144.100, at the right time and from the correct direction, on the night of 11.1.85. He was unable to identify the call sign.

Any other reports would certainly be appreciated.

Thanks go to those who helped, including Moonaker, Hobart, with some components and advice and Roger VK2ZTB, who suggested the

experiments in the first place.

Next time this vessel goes south it is hoped to take 6m gear and attempt to give more notice of the planned activity.

There was a fair amount of activity on HF, both at sea and from Commonwealth Bay. A report of this activity is being prepared and will appear in AR when completed.

WIA 75th  
ANNIVERSARY  
NATIONAL FOX  
HUNTING  
CHAMPIONSHIP

26th &  
27th  
October  
1985



# THE WESTERN AUSTRALIAN — INTERSTATE-OVERSEAS VHF/UHF STORY

Walter J Howse VK6KZ  
13 Siddons Way, Beecroft, WA 6154

## 75th Nostalgia

Recent events on VHF/UHF included the bridging of the Perth Adelaide path (2137 km) on 432 MHz for the first time ever. The author owes his interest and activity on VHF/UHF to the late Rolo Everingham VK6BO who made the first contacts in 1951 and 1952 on 144 MHz to Clem Tilbrook VK5GL and Reg Galle VK5QR. Rolo, as well as the author and others, frequently looked to repeat his feat. This article is an attempt to bring together information on the bridging of the VK6/VK5 and VK6/VK3 paths over the period 1951 to January 1985 as well as other interstate and overseas "firsts" on 144 MHz.

### 50 MHz — 6 November 1948

The first VK6 to work interstate on the 50/52 MHz band was VK6HM in Kalgoorlie who made his contact at 1035 UTC on 6 November 1948 by working VK5GB (I). He was closely followed by Wally Green VK6WG in Albany who worked VK5GH at 1045 UTC. At 1109 UTC Wally worked Reg Galle VK5QR — the first of many VHF/UHF QSOs between these two amateurs as will emerge later (2). Another Wally — the late Wally Peterson VK6LW chalked up the first interstate QSO on 50 MHz from Perth in December that year (3). By April 1949, the stage had been reached where Don Hawksworth VK6DW at Bruce Rock needed to work a VK6 before he could claim the "Worked All States" award for 50 MHz. Don finished with Certificate No 3 (4). It was not until 1963 that the second such award was made to a VK6 amateur and that was to the author as VK6ZAA (5). The long gap was due primarily to the lack of activity in the Northern Territory.

### 144 MHz — 30 December 1951

On 144 MHz, the log of Rolo VK6BO shows that on 30 December 1951 the 50 MHz band was opened at 0108 UTC when he worked VK5CM. This was the first of a continuous stream of 50 MHz contacts until 0705 UTC Clem Tilbrook VK5GL was worked for the fourth time that day on that band. The next entry in Rolo's log was for the 144 MHz band. Rolo gave VK5GL a 5/5-8 report and he received a 5/6-7 on AM with the contact concluding at 0712 UTC. At 0718 Rolo resumed working VK2,3,4,5,7, ZL1,2, and 4 on 50 MHz until 1330 UTC. At that time the log shows "called CQ CW 2S till 12.00 midnight (ie. 1600 UTC)". In all, Rolo had 86 interstate contacts that day on 50 MHz. This contact of 2164 km was just short of the then world record distance of 2253 km.

### 9 February 1952

On the 9 February 1952, Rolo called CQ at 0245 UTC on 50 MHz and worked VK5GL at 0245 and VK5HD at 0250. The next entry at 0312 UTC was VK5GL on 144 MHz with report 4/2-8 and received 5/6. At 0223 UTC Reg Galle VK5QR made his contact with reports of 5/5-8 sent and 5/5-7 received. Rolo called CQ on 144 MHz "on and off till 1145 (ie. 0345 UTC)" and from 0400 onwards worked VK5HD, VK5GL and VK5QR on 50 MHz with the final six metre contact recorded at 0645 UTC (6).

The equipment used at that time gives an idea of the changes now evident in technology. Clem Tilbrook VK5GL used an RL7 triplex oscillator with an 8 MHz crystal, a 6V6GT doubler to 48 MHz, and an RKA34 tripler to 144 MHz with a 832 final with 18 watts input. The amplitude modulation resulted from a modulator using a pair of 6V6s in Class A push/pull. The receiver comprised a crystal locked converter with a 6J6 push/pull RF amplifier, 6J6 push/pull mixer with a 6C4 cathode follower. The oscillator section

used an 1852 tritron, fifth harmonic from 9.4 MHz driving a half 6J6 tripler to 144 MHz. The band tuning from 3-7 MHz was done "on a conventional 12 tube receiver". Clem's antenna comprised a four over four with the bays spaced a full wavelength apart with the top 28 feet (8.5m) high. Folded dipoles were used as radiators fed with 300 ohm open line (7). Clem commented on his QSL card "look forward to many more contacts with you. Who knows that it won't be 288 MHz soon — here's hoping".

Reg Galle VK5QR commented "Clem and I intend watching each time the weather map indicates a possibility viz cold front from west to east near the coast plus a parallel isobar close to it. Both breakthroughs showed this oddity on weather maps... we are very keen to test one metre gear" (8).

Rolo's equipment is not so well documented. His colleague Don Graham VK6HKG agrees with the author that the antenna on 144 MHz was a five over five array spaced a wavelength apart and the transmitter had an 815 valve in the final.

The input power on AM was 45 watts and his converter used a tunable oscillator. Because of the length of the run between the shack and the tower Rolo constructed his own open wire line.

### Near Misses From Perth

In many six metre openings in the period to 1976 when Rolo died, VK6BO could be heard around 144.22 MHz, on the key seeking to repeat his 144 MHz contacts. The nearest he came to this was probably on 1 January 1967 when Col Moore VK5RS heard Rolo at 0435 UTC (9). The Perth 144 MHz beacon was heard that day at 0305 UTC in Adelaide by VK5ZBR and VK5ZMW (10). Another near miss for Rolo was on 15 February 1970 when he recorded in his log "At least 0715 heard VK5VF on 144.8". At that time the Mt Barker two metre beacon was 5/9+ off the side of Rolo's beam. Kevin Hickin VK6ZCB (now VK6AB) also heard VK5VF at that time at 529. These observations immediately followed Rolo's daily early morning checks with Wally Green VK6WG on 144 MHz. Wally was in Norseman at that time. VK6WG's signal was 5/2-5 in Perth at 0645 WAST (11).

### Western Australian VHF Group (Inc) and Beacons

However to revert to the general story of 144 MHz, a significant event had occurred on 30 April 1955 when thirteen amateurs met at the home of Ron Mould VK6FM in Mt Pleasant, Perth and decided to form the Western Australian VHF Group. Following an application for a permit in January 1958, this Group established the first amateur beacon in Australia on 50 MHz. This had the call sign VK6VF and was placed on air in January 1959 in Kalunduwa at the QTII of Bob Elms VK6BE (Bob now lives in Albany). On 14 June 1961, the Post Master General's Department approved an application from the VHF Group and

the Group established a beacon on 144 MHz in addition to its six metre one. In 1962, the Group built a six metre beacon for operation on Cocos Island which was operated under the care of Lionel Allen VK9LIA. The beacons were to facilitate detection of band openings. (12)

### Near Miss from Narrogin

On 3 January 1961, Kevin Bicknell VK6ZCB, who was living in Narrogin (185 km south west of Perth), worked Doug McArthur (now VK5SUM), then VK5SKK, crossband from two to six metres. The six metre band had been wide open with rock crushing signals. Doug had no problem in receiving Kevin's AM signal on 144.18 MHz. However Kevin had chosen that day to rebuild his two metre converter so preventing a two way contact on 144 MHz. The crossband contact continued until 1510 UTC, ie. nearly midnight local time! (13).

### Bunbury/Adelaide — 8 January 1965

During a six metre opening to the Eastern States, Andrew Martin VK6ZCN (now VK3KAQ) in Bunbury (150 km south of Perth) worked Colin Hurst VK5ZHZ (now VK5H) in Adelaide on 144 MHz at 0520 UTC on 8 January 1965. The Adelaide beacon VK5VF on 144.8 MHz was heard at 0612 UTC by Andrew but no other two metre contacts eventuated (14). The commonly accepted theory has been that Rolo and Andrew had achieved their contacts via Sporadic E. However a new phenomenon was about to emerge, to dramatically alter the thinking about east-west VHF/UHF DX.

### Weapons Research Establishment Propagation Tests 1966-68

The Weapons Research Establishment of the Australian Defence Scientific Service turned its attention to the anomalous propagation over the path between Albany, Western Australia and Salisbury, 25 km north of Adelaide, South Australia. In December 1966, a VHF transmitter on 135.5 MHz, a power output of 5 kW and Yagi antenna with a gain of 12.2 dB was installed at Albany. A second transmitter on 1769 MHz at 1 kW and parabolic dish antenna with a gain of 35.7 dB was added at Albany in October 1967. Received signals at Salisbury over the 1890 km path indicated frequent openings on both frequencies. Signals on 135 MHz reached as high as 10 dB below free space and 25 dB below free space on 1769 MHz. An early report of that research published in May 1969 showed that from October 1967 to April 1968 there were sixty openings on 135 MHz of at least two hours duration, and one which lasted for a fortnight in January 1968. The openings on 1769 MHz were not as frequent (twelve occasions only) nor did the signal reach the same high level as at VHF. Further the VHF signal was always present when a UHF signal was received (15).

## Mt Barker 144 MHz Beacon and First Contact 3 January 1969

Spurred on by the success of these tests, the West Australian VK Group (Inc), (urged on by the then president Don Graham VK6HK) obtained a licence for a two metre beacon which was installed in October 1968 at Mt Barker, 50 km north of Albany under the care of Tom Reed VK6TR. Initially operating as VK6VTP/P and later VK6VE, the beacon was heard in Adelaide and the first of many 144 MHz contacts between Albany and the Eastern States was achieved by Wally Green VK6WG and Mick McMahon VK5ZDR on 3 January 1969 (16).

After a power failure in July 1969, the beacon was rebuilt and reinstated at Mt Barker in December 1969. In May 1970, the beacon was sold to the Southern Electronics Group based in Albany (17) and it was moved to Albany as it was thought that the inland location of Mt Barker was a great disadvantage.

The award for the unluckiest pair of amateurs might go to Red Graham VK6ZDS (now VK2BQJ) and Charles Kosina VK6LK (now VK3BRA) who, for the three summers of 1964 to 1966, operated just east of Albany with equipment for the six and two metre bands and worked an extensive amount of DX on six metres but none on 144 MHz. Maybe six metre conditions were too good! (18).

## Other Near Misses 1969-1970

Back in Perth things were also happening. Kevin Blackwell VK6ZCB was now living in Lesmurdie, a suburb about 20 km east of Perth (and about 300 metres higher!) On 17 January 1969, Kevin copied the VK5VF beacon on 144.8 MHz from 2203 to 2227 UTC (ie. 0603 to 0627 WAST 18 January 1969) at signal strengths peaking 5/9. Wally Green VK6WG in Norseman also copied this beacon at this time. On 15 February 1969, Kevin again heard the VK5VF two metre beacon with strength 3 at 0705 WAST. Reference was made earlier to Rolo Everingham hearing VK5VF on 15 February 1970 and Kevin's confirmation of receiving it. Kevin tells now at 0625 WAST (ie. 2225 UTC on 14 February 1970) he first heard the beacon at 5/9+. frantic calling for a QSO was unsuccessful. The beacon was still audible when Kevin went out at 0952 WAST and again at 1023 WAST when he was home again. Kevin expressed regret that he did not record in his log when he lost the signal completely. (By the way, the dates 15 February 1969 and 15 February 1970 were double checked to confirm that the events described were one year apart!) On each of these occasions there was no evidence of a six metre opening (19).

## First VK6/VK3 Contact on 144 MHz — 1 February 1970

Early in 1970 there was a lengthy opening from 30 January to 4 February when Bernie Gates VK6JK made sixty six contacts to the Eastern States including the first VK6/VK3 contact on 144 MHz. This occurred on 1 February 1970 at 0050 UTC to Bob Halligan VK3ACT over a 2441 km path for a Western Australian distance record (20).

## Inland Contacts

At that time Wally Green VK6WG was in Norseman and during the opening he had difficulty in attracting the attention of the Adelaide stations but on 30 January 1970 at 2225 UTC Wally worked Gary Henden VK5ZKZ for the first Norseman/VK6 contact (21). On 3 January 1973 at 1206 and 1340 UTC Bob Pine VK6ZP/P feeding 10 watts AM to a five element Yagi at the north east corner of the Stirling Ranges worked Kerry Adams VK5SSU at Ceduna. Bob was one of the earliest, if not the first amateur from an inland location north of Albany to achieve a two-way contact on 144 MHz (22).

## The Author's Experiences Along the South Coast of Western Australia

Exploration of the 144 MHz path between Western Australia and the Eastern States has been a strong interest of the author, being first encouraged to investigate the VHF/UHF regions by the late Ro Ro Everingham VK6EO who had had the early successes on 144 MHz. The author missed two important

periods described earlier, by being absent from Western Australia in 1968-70 and 1972-74. Beginning in December 1976, he has operated portable during each summer period along the south coast of Western Australia.

In 1976, the equipment used was limited to 144 and 432 MHz and the antenna depended on an adjacent post or tree or, on one occasion, one tall sycamore for support! Contacts were made from Albany to VK5 on both 144 and 432 MHz. Learning from that experience, the author has developed a comprehensive system which enables him to set up a complete portable station for all bands from 1.8 to 3456 MHz at very short notice. This has permitted waiting in Perth until the conditions for DX appear promising before venturing to the south coast.

In 1977-78, heavy QRM in Albany resulted in a shift 20 km west to Torbay Hill. From there, many VK5 and VK3s were worked on 144 and 432 MHz. A contact on 8 January 1978 at 1316 UTC with Mike McDonald VK3ZQV (140 km east of Melbourne) resulted in a new Western Australian distance record of 2614 km for the 144 MHz band.

In 1978-79, Walpole (85 km west of Albany) was selected to see if the two metre path extended further west. Signals were heard and they resulted in contacts on 144 MHz with VK5 and VK3 over paths up to 2571 km.

Also in 1979, two-way 144 MHz contacts were achieved on SSB from inland points. On 28 January 1979 from Mt. Gambier, stations as far east as Hatherleigh, near Mt Gambier (VK5MCE) were worked on two metres. Mt. Gambier, halfway between Walpole and Manjimup, was 35 km from the coast but the direct track to Adelaide had to cover 160 km of land before reaching the Great Australian Bight.

On 4 March 1979, the author, VK6KZB, worked to Peter Smith VK5ZPS whilst returning to Perth from Albany. From roadside locations he was able to work Peter until 1330 UTC when he was 10 km north of Kojonup, ie. 150 km inland from Albany and 235 km from the Bight in the direction of Adelaide.

## First VK6/VK4 Contact on 144 MHz

The first contact between VK6 and VK4 occurred on 3 May 1983 at 2150 UTC by John Harlock VK6GU at Wyndham and Steve Hinze VK4ZSH portable at Carnoowah using meteor scatter (23). The contact required about one hour to complete.

## First VK6 to Indonesia Contact on 144 MHz — 2 October 1982

This was achieved on 2 October 1982 at about 0400 UTC. The Port Hedland repeater (130 km north of Perth) on 147.0 MHz was opened intermittently with an occasional Indonesian word.

Mark Dunning VK6WV was the first to make contact when he got a call sign and broken English coming back to his call. Harry YD9BBC and Gede YD9BR in Denpasar, Bali asked them to QSY off their official Police frequency! Contact was continued direct on 146.5 MHz FM. (24)

## First VK6 to Japan Contact on 144 MHz — 23 April 1982

John Harlock VK6GU in Wyndham worked Yuki JH4JPO at 1052 UTC and then JH4KTN at 1103 UTC on 23 April 1982 for the first WA to Japan two metre contacts. The characteristic flutter of transoceanic signals was observed by him. The distances involved were 5509 km and 5501 km respectively. (25)

## FM Contacts Through Repeaters

There have been VK6 and VK5 contacts made on FM through the Wagin two metre repeater (146.40/147.00 MHz) from Wagin and Katanning and also from these locations through Adelaide repeaters as well as direct on simplex. On 9 February 1979 some FM contacts were made to VK5ZCT via the Bunbury repeater (146.30/90). Detailed data on these contacts is not available to the author.

## 144 MHz Distance Record from Cape Leeuwin — 23 January 1980

In the 1979-80 season, VK6KZ operated from Cape Leeuwin, the most south western portion of Western

Australia. This was 260 km west of Albany. On 23 January 1980, over forty eight contacts were made on 144 MHz with VK5 and VK3 stations with the longest path being 2785 km to Andrew Martin VK3YLR (Formerly VK6ZCN) who was operating portable at Ross Hill, 80 km east of Melbourne. VK6KZ was using 10 watts SSB to a five element Yagi.

## Perth/Adelaide on 144 MHz Again After 28 Years — 23 January 1980

However, whilst the author was operating at Cape Leeuwin, the long awaited event was happening. The Perth/Adelaide path on 144 MHz was bridged — this time by four amateurs — Wayne Dowie VK6WD, Jack Borthen VK6ZEL (now VK6KDX), Phil Casper VK6ZKO, and Ron Mould VK6FM who all worked Les Wood VK5ALW in Adelaide. Wayne made the first contact at 0003 UTC on 23 January 1980, following a phone call from Don Graham VK6HK who had heard the VK5VF beacon on 144.8 MHz after a contact with VK6KZ/P at Cape Leeuwin. Poor Don did not receive his report from Les VK5ALW to complete the contact. Other Adelaide stations worked from Perth were Ken Yates VK5RP and Reg Gallic VK5QR. Signals to Perth from Adelaide disappeared at about 0110 UTC.

This opening extended to Katanning (250 km south east of Perth). Ken Thompson VK6ZPQ worked into Adelaide over a 1933 km path to Les VK5ALW at 0025 UTC. Ken had two further contacts to Adelaide on SSB during the opening viz at 1255 UTC with Col VK5RO and at 2305 with Eric Jamieson VK5LP. Ken reported hearing VK6KZ/P (237 km away) working Eastern States stations but he was unable to hear the other end of the contacts. (26)

## Perth/Adelaide Again on 144 MHz — 28 December 1980

During a six metre opening to VK1, 2, 5 and ZL, on 28 December 1980, the 144 MHz band opened briefly to Adelaide. Don Graham VK6HK at last achieved two-way contacts. He worked Mick MacMahon VK5ZDR and Col Moore VK5RO. Ron Mould VK6FM also worked these two stations. The author (at home this time) heard VK5RO and was heard by him but in frantic efforts between 2245 and 2257 UTC was unable to complete a two-way exchange of reports.

Receptions of beacons in Adelaide and Perth were reported on 2 January 1981 when VK5VF on 144.8 MHz was heard by Phil Casper VK6ZKO at 2228 UTC and on 3 January 1981 when T Power VK5ZPE reported hearing VK6VF on 145.00 MHz from 2107 to 2218 UTC.

## First Perth/Adelaide Contacts on 432 MHz — 10 January 1985

On 10 January 1985 Bob Blinco VK6KRC in Perth was in contact with Max Faulkner VK6FM in Manjimup (250 km south of Perth) on 144.100 MHz and Max asked "who broke in". Bob listened and heard a voice. Thinking it may have been Peter Grumbl VK6ZPG (210 km north of Perth), Bob swung his beam only to hear family voices to the east. He proceeded to work Brian VK5KBU at 2247 UTC exchanging 5/9 reports. Bob then rang a number of Perth amateurs alerting them to what was going on. At 2302 UTC Bob made the first ever 432 MHz contact between Perth and Adelaide with Brian VK5KBU with reports of 5.9 and 5.3. The author was thrilled to work (from the home QTH in Perth), at 2258 UTC VK5KBU on 144 MHz and then VK5ZRO and VK5ZTS before working VK5ZRO at 2304 UTC and then VK5ZTS on 432 MHz. Other 144 MHz contacts by the author between 2304 and 0014 UTC included VK5ZDR, VK5NY and VK5ZPS. Tests on 1296 MHz between VK5ZRO and the author were unsuccessful.

## First VK6/VK5 Contacts on 432 MHz — 11 December 1972

The Perth/Adelaide contacts in 1985 were not the first between Western Australia and the Eastern States. The first VK6/VK5 contact on 432 MHz was made by Wally Green VK6WG on 11 December 1972 with T Bellini VK5ZDY.

Wally later worked Les Jenkins VK3ZBJ, in Frankston near Melbourne, for an unclaimed world record distance of 2440 km. That distance was extended to 3460 km on 8 January 1978 by VK6KZ/P at Torbay Hill working Les VK3ZBJ and this contact was recognised as the world record. Then Aub Keightley VK6XY in Albany worked Mike McDonald VK3ZQV at Carrrajung over a 2593 km path to gain the world record. He in turn lost the record when on 18 July 1979 contacts on 432 MHz were established between California and Hawaii. On 23 January 1980, VK6KZ/P at Cape Leeuwin regained the Australian distance record by working Les VK3ZBJ over a distance of 2717 km.

### 1296 MHz — 25 January 1977

On 1296 MHz it was once again Wally Green who made the first interstate QSO for a world record distance of 1885 km to Reg Galle VK5QR in Adelaide on 25 January 1977. This distance was extended on 29 December 1978 to 1138 UTC when the author VK6KZ, portable at Walpole, worked Chris Skeer VK5MC at Hatherleigh near Mt Gambier, South Australia over a distance of 2107 km. Reports exchanged were 559 to VK5MC and 55 to VK6KZ/P. On 23 January 1980 at 0057 UTC, the 1296 MHz 2146 km path was bridged by two-way SSB between VK6KZ/P at Cape Leeuwin and Reg Galle VK5QR in Adelaide. Later that day at 1202 UTC, Chris Skeer was worked by VK6KZ/P from Cape Leeuwin. This path was 2290 km long.

### 2304 MHz — 17 February 1978

On 2304 MHz it was again Wally Green VK6WG and Reg Galle VK5QR who made the first VK6/VK5 contact. This occurred at 0650 UTC on 17 February 1978. Signal strengths ranged between S1 and S7. Reg

used SSB which was processed in a divide by 6 circuit and mixed to 28 MHz. The 28 MHz signal, with processed SSB, was then transverted to 384 MHz and then tripled and doubled to 2304 MHz. This multiplication by 6 restored the original SSB. Wally used a modified World War II SCR522 which, from a 7 MHz crystal, produced 128 MHz. This was then multiplied to 384 MHz with a BA996, varactor tripled to 1152 MHz in a modified Microwave Modules MMV1296 and then doubled in a 2C39 which drew 90 mA at 600V. No other amateurs have had a VK6/VK5 QSO.

### 3456 MHz — Year to Come

Tests have been carried out on this band between Wally Green VK6WG and Reg Galle VK5QR since the 1979-80 summer period but as at 15 January 1985 no contacts had been achieved.

So there is the story of the VK6 interstate and overseas VHF/UHF contacts on AM, CW and SSB in the period 1951-1985 as researched by the author. So far as is known no contacts from VK6 have yet been made with amateurs in VK2, VK7 and VK8. *Will FM operators please write their story or inform the author to complete the picture?* Little comment has been made of the possible modes of propagation but this is another story to be told.

The higher frequency bands have yet to be exploited. In summary, the first VK6/VK5 contacts were achieved as follows:

| 50/52 MHz band  | VK6HM/VK3GB        | 6 November 1948  |
|-----------------|--------------------|------------------|
| 144             | VK6BO/VK5QR        | 30 December 1950 |
| 432             | VK6GW/VK5ZDY       | 11 December 1972 |
| 1296            | VK6WG/VK5QR        | 23 January 1977  |
| 2304            | VK6WG/VK5QR        | 17 February 1978 |
| 3309 MHz and up | yet to be achieved |                  |

The first VK6/overseas contacts on 144 MHz have been

VK6/Japan VK6GU/JH4JPO 23 April 1982  
VK6/Indonesia VK6WW/YD8BC 2 October 1982

### REFERENCES

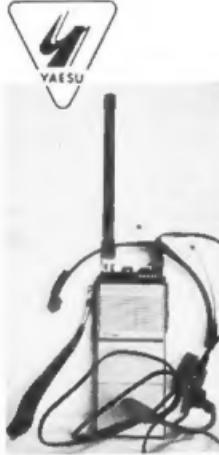
- (1) "Fifty and up" Amateur Radio January 1949 p27
- (2) as for (1)
- (3) Personal communication to the author from Mr Graham
- (4) "Fifty and up" Amateur Radio April 1949 p60
- (5) "Worked All States on 50/52 MHz" Certificate No 47
- (6) Log book of the late Roilo Everingham in the custody of the author
- (7) QSL card to the late Roilo Everingham VK6BO from Clem Tully VK5QJ
- (8) QSL card to the late Roilo Everingham VK6BO from Reg Galle VK5QR
- (9) As (8) above
- (10) "VHF" Amateur Radio March 1967 p27 (see also WA VHF Group Bulletin June 1967 p3)
- (11) As (8)
- (12) Records of the WA VHF Group Inc
- (13) Personal communication to the author from Mr Bicknell
- (14) Personal communication to the author from Mr Martin
- (15) L G McAllister "Radio Ducting at 135 MHz and 1769 MHz between Albany (WA) and Salisbury (SA)", Technical Note CPDT-173, Department of Supply, Australian Defense Scientific Services, May 1969
- (16) WA VHF Group Bulletin, May 1969 p3
- (17) WA VHF Group Bulletin May 1970 p3 and the records of the WA VHF Group
- (18) WA VHF Group Bulletin, January 1967 p7
- (19) As (13)
- (20) Personal communication to the author from Mr Cates (see also Amateur Radio March 1970 p27)
- (21) Personal communication to the author from Mr Green
- (22) Personal communication to the author from Mr Pine
- (23) "VHF UHF — An Expanding world" Amateur Radio October 1983 p55
- (24) "VHF UHF — An Expanding World" Amateur Radio June 1982 p11
- (25) "VHF UHF — An Expanding World" Amateur Radio June 1982 p48
- (26) Personal communication to the author from Mr Thompson AR

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# WIRELESS INSTITUTE OF AUSTRALIA'S 75TH ANNIVERSARY NATIONAL FOX HUNTING CHAMPIONSHIP



The first Australian Fox Hunting Championships are to be held as part of the WIA's 75th Anniversary. They will be conducted at the Wagga Convention on the weekend of the 26th and 27th October 1985.

Entries are invited from interested teams who should fill out the entry form and send it to: *Australian Fox Hunt Championships, Box 270, Greensborough, Vic. 3088*, by the 16th September 1985.

Hunts will be held on the 3.5, 28, 144 and 432 MHz bands and there will be further advice and regulations sent to each participant.

If you wish to register at the Wagga Convention, send a normal convention registration directly to them as well as a Fox Hunt Championship one.

The trophy for this event is shown on the front cover of this month's magazine. It will be held by the winning team for twelve months.

## RULES

There shall be no more than four members in each team.

All equipment and team members will be in one vehicle.

Passing of information to or from teams is not permitted.

All road laws are to be observed.

The fox will always be on public property and there will always be public access. This may not be easy to find, however. Hounds should not venture onto private property.

Each team will be issued with a single ID card which is to be handed to the fox controller when the transmitter has been located. A team may have any number of 'sniffers' but the handing over of the ID card is the only way of recording a result in the hunt.

The fox may be hidden anywhere and may not be in a vehicle.

When the fox is mobile it will obey all road laws.

The fox transmitter will not be turned off when a hound approaches unless as part of a predetermined sequence.

The fox may use any authorised mode of transmission with due respect to appropriate band plans.

## SCORING

The first team to find the fox scores zero points. Other teams score one point for each minute (or part thereof) elapsed since the first team.

After ten minutes, the fox will announce 'time up' and hounds should then assemble for the next hunt. The maximum score is ten points.

The winner of the championship will be the team with the lowest score.

In the event of a tie, a count-back will be conducted and the team with the most wins on individual hunts will be declared the winner. If a tie still exists, a two metre sniffer hunt will be held to decide the Championship.

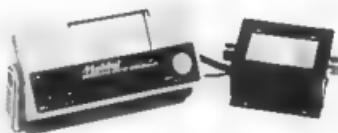
## SUPPORTED BY ICOM AUSTRALIA PTY LTD



Icom Australia have donated a special 75th Anniversary year prize of a handheld IC-2A to the winning team.

The Wireless Institute of Australia's 75th Anniversary Committee thanks Kiochi Fukushima of Icom.

## SUPPORTED BY GFS ELECTRONIC IMPORTS



GFS Electronic Imports have donated a special 75th Anniversary year prize of a VHF/UHF SWR meter for the winning team.

The Wireless Institute of Australia's 75th Anniversary Committee thanks Greg Whiter of GFS for the donation.



## WIRELESS INSTITUTE OF AUSTRALIA AUSTRALIAN FOX HUNTING CHAMPIONSHIP ENTRY FORM



Team Leader's Name: ..... Team Call Sign: .....

Address (for correspondence): .....

Postcode: ..... Phone: ( ) ..... BH ( ) ..... AH

Team Members:

1

2

3

Name:

Call Sign:  
(If known)

Booking Details:

O'nite van

If other, details: .....

ACCOMMODATION  
 Motel single

persons in  
 Twin share

Other

# AN EXPERIMENT IN ANTENNA POLARISATION

Bob Slutskin VK3SK

8 Lynedoch Avenue, East St Kilda, Vic 3182

Most operators on the twenty metre band will probably have observed, as I have, that virtually all the big signals from afar emanate from horizontally polarised beams. Even W1DBM's 4 x 4 array of verticals, which put in a big signal over here a few years ago was still surpassed by some of the horizontal beams.

The Internationa broadcasters almost always use horizontally polarised panels. An exception was our Darwin Radio Australia station which used vertical log periodic until Cyclone Tracy intervened and blew them down. The station has been restored again, but this time with horizontal panel arrays. Another instance of Internationa broadcasters using vertical polarisation was in the 30s or 40s when the BBC had a large Franklin array for their broadcasts to India. An interesting paper (the reference for which I have now lost) described how the Franklin required maintenance, so the stand-by dipole was commissioned during the exercise. Reports came back from Delhi that signals were much better. This triggered off a series of controlled tests over a period of time, and led to the cautious conclusion which went something like this:

Over the path in question, at the frequencies in use, and during the prevailing ionospheric conditions, it might appear that the horizontal dipole gave a better performance than did the vertical Franklin array.

It might suggest to us amateurs that we might be able to do better with horizontal polarisation.

In spite of this, vertical antennas have many advocates. In CQ Magazine, Commander Paul H Lee W3JHR wrote convincingly in favour of verticals for DX in November 1962. Then as Captain Paul H Lee W3JHM, wrote a magnificent twelve-part series, as good as a handbook, on vertical antennas in the June 1968 through May 1969 editions of the same magazine. This, plus all the various texts on the subject in the literature should enable any radio amateur to design, erect and adjust an effective vertical antenna to suit his needs, so why is it that we hear so very, very few big signals from verticals in distant lands? Has the ground system anything to do with it perhaps? An efficient ground system might be a little difficult, expensive or arduous for a lot of us on our suburban lots, but International broadcasters would not be put off by such minor difficulties, and they seem to prefer horizontal panels. Does ionospheric propagation prefer horizontal polarisation perhaps? The widely accepted theory seems to be that, irrespective of the polarisation of a transmission once it has encountered the ionosphere, it will continue to the distant point to reappear with its polarisation randomly mixed suggesting that the polarisation of a transmission would be of no importance. Perhaps this is an oversimplification of a complex subject.

Realising that I would never find all the answers, I nevertheless set about to do some experiments. I used a quad, the polarisation of which I could change from the shack.

The polarisation of a quad element is dependent on the position of the feed point. If the element is fed at the top centre or bottom centre, its polarisation is horizontal. If it is fed at the centre of either side its polarisation is vertical. My quad was of diamond configuration and it had a very good boomerang type base built into one of the support arms. The boom could be revolved like an axe, by a horizontally mounted Stollie rotator and as the loops turned like wheels, the feed point would change from bottom, to side, to top, to the other side, the polarisation changing in the process. It was a tri-band quad, but I concentrated in optimising its performance at 14 250 MHz with the idea of conducting the experiments very close to that frequency. This project started early in 1978, at a beach house at Blairgowrie, Victoria, which is on the

Mornington Peninsula, about 30 km across Port Phillip Bay from Melbourne.

Harold Tribe VK3AVH provided some valuable help in the early adjustments of the quad. About 750 m from my QTH he had a 4 element Yagi 15 m high, and was good enough to keep many schools with me across this rather doubtful antenna range. In the end, I could repeatedly measure a front-to-back ratio at the design frequency of better than 25 dB, and a cross polarisation rejection of better than 20 dB. By accident we discovered that Harold's dummy load leaked sufficiently for measurements to be made across our "range", and fortunately that leakage radiation was vertically polarised, enabling us to do the cross polarisation tests two ways.

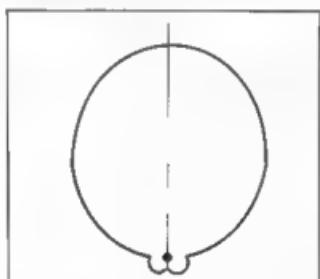


Figure 1 — Azimuth pattern of a quad antenna.

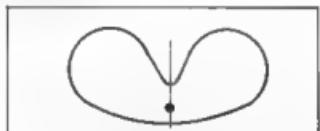


Figure 2 — Cross polarisation azimuth pattern of the quad.

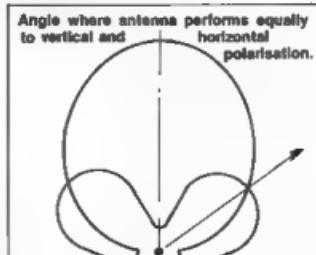


Figure 3 — Figures 1 and 2 superimposed.

During the front-to-back runs, I could see that the quad's azimuth response conformed generally with that shown in the text books (see Figure 1) but I considered that there would be no point in trying to plot it because of the inadequacies of the "antenna range". The cross polarisation azimuth response was interesting. There were two forward lobes (as depicted in Figure 2), but again there was no attempt made to plot this. More about these later. The tests certainly gave me confidence in the performance of the quad as a beam, and in the effectiveness of the polarisation control. Not only was the front-to-back performance optimised for 14 250 MHz but also the SWR was minimised for that frequency at almost 1.1. There was no practical change in the SWR with changes in the quad's polarisation which would suggest that the beam was fed via and that as the loops were revolved to change polarisation, the radiation efficiency of the quad itself would remain constant. I believe that any change in radiation efficiency would be accompanied by a change in impedance and SWR. Satisfied that the quad was efficient, it was time to commence the main part of the project namely to investigate the effects of polarisation on propagation. This part continued intermittently for about two years, at which time the Stolls started to malfunction (possibly because it was not designed to operate on its side). As a temporary measure, to a row of Stolls to be checked over, the quad was fixed for horizontal polarisation, but other projects have become more pressing now, and I cannot see myself continuing the polarisation tests.

During the two years, thousands of observations were made. No statistical analyses were carried out but a fairly definite trend was apparent as will be shown.

## OBSERVATIONS

### Over DX Paths:

The large majority of tests were made over the short and long paths to USA, next came the short paths in the Pacific area, and the long path to Europe. Listening tests showed that on no occasion was the quad better in its vertical polarisation condition, neither was mixed polarisation (half way between the two positions) any better, strengthwise. I did endeavour to test the possibility of mixed polarisation improving fading conditions but was unable to obtain any evidence of this. A minority of tests indicated that the polarisation change made no significant change in signal strength. The majority of tests showed horizontal polarisation to be superior by at least one S-unit and sometimes more than two S-units.

On those occasions when I had a QSO with the DX station and obtained reports on my signals as "changed polarisation", these reports showed good agreement with my reciprocal observations.

### Local Working:

As would be expected, matching the other party's polarisation was best for close contacts, but strange things happened across Port Phillip Bay to stations 50 or so km away. I had quite a number of QSOs with VK3ADR, VK3BY and the late VK3AR, all of them using beams.

Most often, signals were better both ways when my quad was vertically polarised, but on some occasions conditions favoured the horizontal setting.

### Tests with a Mobile Station:

When Jim Rumble VK6RJ motored across to Melbourne from Perth, this gave me a wonderful

opportunity to test the antenna. We kept daily schedules all the way across, and did the polarisation test each time. From Perth (about 2700 km away) to Adelaide (about 600 km from me) signals were significantly better in each direction with the quad horizontally polarised. As Jim left Adelaide climbing the Lofty Range, this was still the case. During the siren on that morning, as he reached the top of Mount Lofty, there was a spectacular increase in his signal to S 9 + 20. At this stage I did the polarisation test, and to my surprise changing to vertical polarisation improved signals by at least 10 dB. I am still puzzled about the mode of propagation over that 650 km path on that day, because once he reached lower ground we lost contact.

#### DISCUSSION

Except for local contacts, and over unusual paths, the quad performed better when horizontally polarised most of the time. Had it been at a different height (it was 15 m above the ground) with different foreground conditions, or had an entirely different part of the spectrum been used, the results may not have been the same. However, some comments could be made on the tests that were carried out.

I do not know with any certainty that the quad's radiation efficiency remained constant as the polarisation was changed, but it would be reasonable to assume that it did — particularly, as I did measure the impedance and SWR as the loops were being re-wired and observed virtually no change. Let us assume that the efficiency was constant.

2 We could therefore claim that horizontal polarisation was better for most DX paths — ie from the quad itself, across its foreground, through the ionosphere, to the distant station. Was it the foreground (where a horizontally polarised signal undergoes a phase change at the point of reflection) and the phase of a vertically polarised signal is not changed? which caused this effect? If so, a different location, different antenna height, different ground conductivity or terrain could produce different results. It is my guess that it was the foreground, because otherwise the theory that ionospheric waves are randomly polarised would be

under suspicion.

3 An explanation is needed, therefore, for the inconsistency of the results. Why, on some occasions, was no significant change in signal strength observed with the polarisation change? And why was the observed change different on different occasions?

Figure 1 shows the general shape of the quad's polar pattern, ie its azimuth response to a horizontally polarised signal when set for horizontal polarisation. (This is only estimated, because it was not measured and could not be measured accurately over our doubtful antenna range). Figure 2 shows the cross polarisation polar pattern (also not measured for the same reasons). Figure 3 shows these two patterns superimposed, and it can be seen that there is intersection between the two patterns. Because of the lack of detailed information of the individual curves, we do not know with any certainty where the intersections occur, but what this indicates is that at some angle to the side of the main lobe's centre, revolving the quad loops would make no difference to the polarisation performance, because at that angle the quad's polarisation would be half horizontal and half vertical. If you want to be fussy, the radiation pattern of an antenna cannot be expressed fully as in Figure 1 and 2, but these figures represent the supposed azimuthal patterns at one particular vertical angle of radiation. The size and shapes of the lobes would be different at different vertical angles. Therefore that magical azimuth bearing where the antenna performs equally to vertical and horizontal polarisation might be expected to vary over a range of vertical angles of radiation.

As I was not always certain to have had the beam pointing over the optimum path (and many of us must have observed, particularly, over very long paths, that the best signals do not always come in on the great circle bearing) this could be an explanation of why some observations showed a parity between vertical and horizontal polarisation. Had I thought of this at the time I would certainly have checked that I was beaming optimally before each test!

#### CONCLUSION

I cannot help but conclude that for the higher frequency bands at the vast majority of amateur station locations, horizontally polarised antennas are better for DX. I said "higher frequency bands" because these are the bands where an antenna can be mounted high enough above the foreground in terms of wavelength. When a horizontally polarised antenna is strung up an eighth of a wavelength or less above the ground, the ground will act as a reflector and cause most of the signal to be radiated at very high angles. I think you need to have a "horizontally polarised DX antenna at least a half wave above ground". The higher the better. Therefore, for the lower frequency bands a vertical might be expected to do better, particularly if a good ground system can be employed.

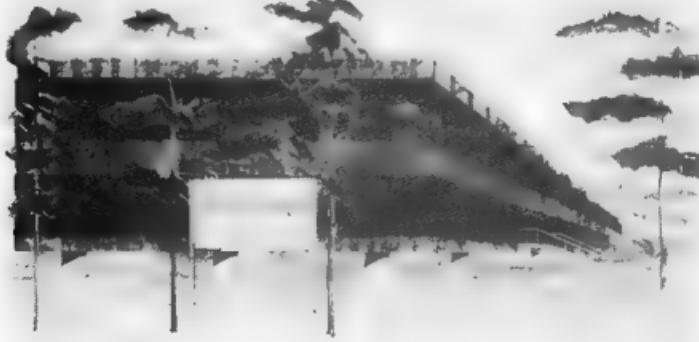
Before signing off, I must tell you about my friend W2GCX who has a 60 ft x 40 ft all aluminium (or aluminium?) mono pole home in Florida for winter use. It is a huge complex of similar mobile homes, and no antenna of any kind is permitted. There is no ban on flagpoles, so he has one (complete with trap) mounted at roof level. He flies Old Glory most of the time, but he sometimes flies the Aussie flag that sent him (when conditions between us are poor). We are amazed at the excellent and consistent contacts we have had over the long path when he is down there, even when conditions aren't the best. His 60 x 40 aluminium ground system good, and undoubtedly the Aussie flag makes it work well — but then his signal is never as good as those from the boys with horizontal beams.

#### AFTERTHOUGHT

An interesting thought comes from Figure 3. For reception, a quad may have a disadvantage over a Yagi in locations where directional properties are req'd, red to help reject strong QRM from locals — a typical situation in most parts of USA. do not think that a Yagi would have a cross polarisation response that the quad has, and most Yagis that I have encountered have a very deep null off the side and towards the rear. The null would be drastically reduced by the quad's cross polarisation response, in my opinion.

AB

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# SOME COMMENTS ON ANTENNA GAIN

Graham W. Serman VK5EU,  
19 Washington Street, Hilton, SA 5033

Whenever a potential user examines published literature and advertisements, describing antennas and evaluating antenna gain, what stands out is the wide variation in actual figures quoted, often on otherwise similar antenna types. Another factor is the use, or more often than not, of the lack of use of terms such as gain with reference to an isotropic radiator or dBi, gain with reference to a dipole or dBd, pattern gain, and many others. Here we will briefly look at the difference between these figures and at some other important antenna characteristics.

There are numerous antennas and antenna models that are used as standards for comparison. Some of these are:

## THE ISOTROPIC RADIATOR

An antenna model — not practically realisable, used as a standard of comparison as it has the most basic pattern. Radiates equally well in all directions.

## THE HERTZIAN DIPOLE, OR SHORT DIPOLE

Not accurate when used as a reference antenna due to lack of ability to discriminate against error causing reflections. A very short dipole, length much less than a quarter wavelength. Pattern similar to the familiar half wave dipole but flatter "doughnut".

Gain 1.76 dB above that of an isotropic radiator, or 1.76 dB.

## THE HALF WAVE DIPOLE

Not accurate when used as a reference antenna due to lack of ability to discriminate against error causing reflections. Familiar "doughnut" pattern.

Gain 2.15 dB or 0 dBd

## EIA STANDARD

Consists of two half wave dipoles fed in phase, mounted in a prescribed manner above a plane reflector.

Gain 9.85 dB, or 7.7 dBd.

## ANTENNA GAIN VS SIZE

Assuming the same efficiency, all circular aperture antennas with the same gain will also have the same beam width and aperture or capture area.

From this we can see that in order to increase gain, we must increase aperture and decrease beam width or alternatively improve efficiency.

A simple way of comparing antennas is to compare their apertures (where similar efficiencies can be assumed).

Rules for evaluating aperture (for comparison purposes):

Parabolic Dish antennas

aperture equal to surface area

Corner Reflector antennas

aperture equal to surface area

Horn Antennas

aperture equal to front surface area

Yagi Antennas (optimum)

aperture equal to an area included by a circle of diameter equal to the length of the boom of the antenna

as for Yagi antennas

difficult to evaluate but is proportional to length or active area at the frequency of interest

Helical Antennas

as for Yagi antennas

Log Periodic Antennas

difficult to evaluate but is proportional to length or active area at the frequency of interest

## Collinear Antennas

aperture equal to frontal surface area, plus a strip around the outside equal in width to the half aperture of a dipole

## COMPARISON BETWEEN MEASUREMENT METHODS

There are two commonly used methods used to evaluate antenna gain, one direct, the other indirect.

## REAL OR DIRECT GAIN MEASUREMENT

With a fixed transmitting source, a comparison is made between the voltages measured at the terminals of a standard gain antenna, and that at the terminals of the unknown gain antenna.

## PATTERN GAIN OR INDIRECT METHOD

The half power beam width of the antenna to be tested is measured and the formulae relating gain and beam width is used to determine a gain figure.

This method makes no allowance for aperture and coupling efficiencies of less than 100 percent. This consequently gives higher gain figures than direct measurement. It is however much easier to use than direct methods.

## ANTENNA BANDWIDTH

Firstly let us oppose one commonly held belief. There is NOT necessarily any correlation between the frequency or range of frequencies at which an antenna exhibits good or best VSWR (voltage standing wave ratio), and that where good or best gain occurs.

One glaring example of this that the author found was a commercial 470 MHz antenna which exhibited a VSWR of 1.1 : 1 at 465 MHz and almost no gain. Best gain occurred at 560 MHz where the VSWR was 2 : 1.

## BANDWIDTHS OF DIFFERENT TYPES

NOTE: considerable variation occurs between different designs, the figures shown are representative only.

Collinear antennas — conventional types are limited to about 4 percent at best or about 17 MHz at 420 MHz.

Extended expanded collinear arrays are limited due to matching constraints, to between 1 and 2 percent or about 8.5 MHz at best at 420 MHz.

Yagi arrays vary considerably depending on driven element type, element size and whether optimum or non optimum. An optimum (maximum gain) conventional long Yagi will probably be well below 1 percent bandwidth, possibly 0.5 percent whereas a near optimum Log Periodic Yagi or Swan Yagi with large elements can achieve better than 10 percent bandwidth with ease.

Helical antennas properly designed can achieve bandwidths in excess of 50 percent.

Reflector type antennas, eg Parabolic and Corner Reflector. Bandwidths determined principally by the driven or feed element or device. Feeds used include the above antennas, also triangular, biconica, horn and other types. Bandwidths achieved can be much octave.

## TIPS FOR EVALUATING PARASITIC ARRAYS (YAGIS ETC)

Several points worthy of note have been found by the author and others over a period of many years of experimentation.

The elements should not be mounted through the boom unless welded both sides — with time corrosion between the boom and the element at the points of contact, causes variation in the electrical length of the element with a resultant change in characteristics and loss of gain. Elements should be isolated from the boom to be preferred.

Wood booms are subject to similar effects to the above, although not so severe except in extreme contamination. Losses in the wood are also significant, particularly when wet or contaminated.

Element material is relatively unimportant when medium and large element sizes are used (also provided non ferro-magnetic materials are used). Tests made on a dipole antenna at 144 MHz using 3/8 inch (9.5 mm) diameter elements, of aluminum in one case and austenitic stainless steel in the other case, showed less than 0.2 dB difference the two in spite of a 5% difference in resistivity.

Antenna types with 'gain' driven elements, eg log periodic Yagis and quads, appear to be less critical in design and construction than conventional types. A change in element length of 1/16 inch or 1.6 mm at 420 MHz reduced the gain of an optimum conventional 13 element Yagi by 8.5 dB. Similar changes made to log periodic Yagis have minimal effect.

## FORMULAS RELATING GAIN, BEAMWIDTH AND APERTURE

Antenna gain dBi = 10 log K

$$( \frac{30000}{\Theta_H \Theta_V} )$$

for small beamwidths

where

$\Theta_H$  = horizontal beamwidth 3 dB points in degrees

$\Theta_V$  = vertical beamwidth 3 dB points in degrees

K = coupling efficiency

$$\text{Antenna gain } dBi = 10 \log K' \left( -\frac{\pi d}{\lambda} \right)^2$$

for a circular aperture

where

d = diameter of aperture

$\lambda$  = wavelength

K' = aperture efficiency

#### EFFECTIVE APERTURES OF SOME SMALL ANTENNAS

Isotropic radiator

$$\frac{\lambda^2}{4\pi}$$

Very short d pole

$$\frac{1.5\lambda^2}{4\pi}$$

Half wave dipole

$$\frac{1.84\lambda^2}{4\pi}$$

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AR

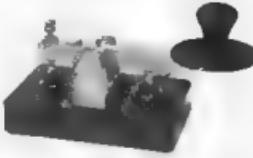


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# THE WOODPECKER PROJECT

Bill Martin VK2COP,  
33 Somerville Road, Hornsby Heights, NSW. 2077

**Given up on the Woodpecker? Read on ...**  
The war against the 'woodpecker' still wages, and, contrary to the beliefs of many amateurs and short-wave-I listeners, the various intruder watches and monitoring societies are still gathering information on yet another thrust at this greatest-of-all sources of QRM to the short-wave radio listener.

For those who have just tuned in — The 'Woodpecker' is a colloquialism for Over-the-Horizon-Radar, which is a defence early-warning system employing high power pulses. The signal is reminiscent of a woodpecker, hence the title. Technically the signal is a 3 millisecond square-wave pulse with a stable pulse-rate of one tenth of a second. Rates of 17 and 7.4 seconds have been heard, but rarely. The signal is wide band, with most of the signal concentrated in about 15 kHz, and a weaker 'pulse-scap' filling the adjacent spectrum. The energy concentrations can be clustered together to cover 100 kHz or more. The 'Woodpecker's' change frequency abruptly and often. Their dwell time varies from a few seconds to a few minutes.

At the 1978 WARC for Aeronautics Services, an anti-Woodpecker statement was signed by eight countries in attendance, and there is some evidence that the Woodpecker QRM in those bands diminished — at least for a while. Similar attempts at noding the HF bands of the past have

met with little success, and diplomatic overtures have been found to have apparently been in the wrong key. Consequently, 'The Woodpecker Project' is under way, and is co-ordinated by the Association of North American Radio Clubs OTH Radar Committee. A major exercise is planned for October 1985, utilising a large number (about 720) volunteer monitoring stations. Each station will be asked to monitor parts of the radio frequency spectrum between 5 and 23 MHz for three-hour periods during the month. If each monitor covers 3 MHz, and at least three geographically-separated monitors are scheduled for each time and band segment, then at least 144 monitors are needed for a 24-hour coverage. A minimum five days of data is desired. Volunteer monitors will be asked to sweep the assigned band segment for three hours over the 3 MHz segment at will, BUT TO TUNE EVERY FREQUENCY AT LEAST ONCE EVERY 10 MINUTES. This information will be logged graphically. Of course, it is equally important to know when the Woodpecker is NOT transmitting.

The Woodpecker has been observed spending a great deal of time around 10.7 MHz lately. That happens to be the intermediate-stage frequency of a number of popular short-wave receivers. Some of the less expensive models have poor image rejection, so that when the Woodpecker stops at 10.7 MHz, it can be heard across the



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radio's entire tuning range. It is reported that England and Japan may get OTH radars. America has, of course, as has the USSR and Australia.

### SURFACE-WAVE OTH RADAR

An experimental variant OTH radar is being developed which operates only over the sea. If vertically-polarised radio waves are transmitted close to the sea surface, they induce electrical currents in the water which causes the radio waves to adhere to the sea surface and therefore travel around the curvature of the earth. There is also a good possibility that the reflected energy will couple with the sea surface for the return journey. The proposed frequencies of operation are unknown, but this development could be yet another potential interference threat to communication services.

So you see, the battle is not over. The Association of North American Radio Clubs (ANARC) is to be congratulated on its efforts to do something about the Woodpecker and concerned amateurs and SWLs will no doubt be interested in the outcome. When next you hear the Woodpecker (and you will), send in a report to the WIA Intruder Watch. Write to your Divisional Intruder Watch Co-ordinator or to Bill Martin VK2COP, WIA Federal Intruder Watch Co-ordinator, 33 Somerville Road, Hornsby Heights, NSW. 2077

# HOW LONG IS A DOT?

Guy Fletcher, VK2BBF

3/34 Benelong Road, Cremorne, N.S.W. 2090

The last year or two has seen a proliferation of calculator-based and computer-based methods of generating random Morse code characters for practice purposes. In order to produce Morse at a known speed, you need to know the duration of a single dot at that code speed. Surprisingly no two programmes seem to agree about the length of one dot.

Morse code is designed for people rather than for machines. An efficient machine code, such as Baudot, has every character the same length, whereas in Morse code the common letters like E, I and A are shorter than less common letters such as Q and Z. This feature appreciably shortens the time to send a plain-language message of a given number of words and dot duration.

It is commonly agreed that a "standard word" has five letters. A dash is exactly equivalent to three dots. In the case of ITU Morse code, the spacings are one dot between dots and dashes, three dots between characters (letters), and seven dots between words.

It ought to be easy to work out the number of "effective dots" or dot durations in a standard word, but it isn't quite as easy as you might think.

## The Length of a Letter

The number of effective dots in a given letter is easily added up. The letter A has one dot, one dash (of length three dots), and one space (of length one dot) between them, making a total length of five dots. Similarly B has a total length of nine dots (three for the dash, one for each of three dots, and one for each of three spaces) and so on through the alphabet.

We need to know the average length of a letter in dots, but it is not correct simply to average all twenty six letters of the alphabet.

## The Frequencies of Letters

You can build a device to send random Morse code at exactly ten "words" per minute, in the sense that it will generate exactly ten groups of five letters each minute with all letters equally probable. This is a great way to learn Morse code but the characters are NOT really being sent at ten words per minute.

If you take any sentence of ten real words, chosen so that it has exactly fifty letters in it, and then send it with exactly the same length dots and dashes as for the random code above, it will take on average, about 49 seconds. This is because the sentence contains relatively more of the shorter letters like E, I and A. Obviously the sentence is being sent "too fast" if the speed of Morse code in words per minute is to have any real meaning at all, then in amateur circles at least it HAS to refer to words of plain English language.

The frequency of use of each letter of the alphabet in plain language text can be found by literally counting the number of times

each letter appears in a long piece of text. Computers are good at doing this, but it is very laborious manually. The answer depends slightly on the kind of text chosen. It is a little different for, say, a novel than for a technical article. But these differences are slight. Table I shows the average number of times each letter is likely to appear per thousand total letters. These figures are taken from some research a few years ago [1] but are not likely to be greatly in error.

TABLE I  
Average occurrence of letters in plain English language

| Letter | Times in 1000 letters | Length in dots |
|--------|-----------------------|----------------|
| A      | 86                    | 5              |
| B      | 14                    | 9              |
| C      | 28                    | 11             |
| D      | 38                    | 7              |
| E      | 131                   | 1              |
| F      | 29                    | 9              |
| G      | 20                    | 9              |
| H      | 53                    | 7              |
| I      | 63                    | 3              |
| J      | 1.3                   | 15             |
| K      | 4.2                   | 9              |
| L      | 34                    | 9              |
| M      | 25                    | 7              |
| N      | 71                    | 5              |
| O      | 80                    | 11             |
| P      | 20                    | 11             |
| Q      | 1.2                   | 13             |
| R      | 66                    | 7              |
| S      | 61                    | 5              |
| T      | 105                   | 3              |
| U      | 25                    | 7              |
| V      | 9.2                   | 9              |
| W      | 15                    | 9              |
| X      | 1.7                   | 11             |
| Y      | 20                    | 13             |
| Z      | 0.8                   | 11             |

## Length of an Average Letter

The data in Table I can be used to find the total duration (in dot lengths) of a message containing 1000 letters, broken up into 200 words of average length of five letters each. This average message will contain 86 As each of length five dots, 14 Bs each of length nine dots, and so on. In addition there will be 200 spaces after words, each seven dots, and 800 spaces after letters not at the end of words, each three dots. The grand total is 9818 dot lengths.

The length of an average letter can be found by taking the total for the 1000 letters alone (without the spaces between letters and words). This is 6018 dot lengths, an average of 6.018 dots per letter, and is an average of the lengths of all the letters.

weighted by the frequency of each letter. This should be compared with the straight average of 8.251 dots when all letters are weighted equally.

It is worth noting that the letter frequencies used refer to plain English language text. Other languages such as French or German will be somewhat different, and the corresponding length of one dot for a particular "words per minute" will also differ slightly.

## The Length of a Dot

We are now ready to write down the correct length  $D_1$  of one dot for a given word speed of  $L$  words per minute. Our 200 words should take  $200/L$  minutes or  $12000/L$  seconds. Since the whole message contains 9818 dot lengths, each dot should take  $12000/9818 L$  seconds, so

$$D_1 = 1222/L \text{ milliseconds.} \quad (1)$$

This may be compared with  $997/L$  milliseconds if the letters had been equally weighted.

If the figure of  $1222/L$  milliseconds for one dot is used in a computer programme, the speed will be exactly equivalent to a plain language speed of  $L$  words per minute. However it must be emphasised that  $L$  groups of random letters will actually take 73.5 seconds, and this does not mean that the speed is wrong.

## Non-ITU Morse

It is quite common to speed up the dots and dashes to a length somewhat shorter than the correct ITU length discussed above, and to leave correspondingly longer gaps between letters and words. This practice makes the code slightly easier to receive (because of the longer thinking time between characters), and is an important aid in learning Morse code. The individual letters can be sent from the beginning at 8 WPM (as in the novice examination) so as to become used to the correct letter speed, yet the overall word speed may only be 5 WPM or less.

A Morse code programme on a computer should therefore provide for independent setting of the letter speed and word speed. The letter speed  $L$ , expressed in words per minute, is equivalent to the words per minute of ITU code of that dot length. The length of each dot is given by equation (1) above.

The word speed  $W$  is the actual number of 5-letter plain-language words sent in a minute. Since the spaces between letters

and words are lengthened, clearly W must be less than 1.

It is actually more convenient, in a computer programme, to leave the first dot after each letter unstretched (at D1), and to stretch (to D2) only the remaining two dots between letters and six dots between words. This has the effect of slightly changing the ratio of word space to letter space from the ideal 7/5, but the Morse is not ITU code anyway. The practical advantage gained is that it is not necessary to identify the final dot or dash of a letter in order to decide whether to stretch the following space: **EVERY** dot and dash is followed by a single unstretched space.

Our average message of 200 words now contains

- (I) 1000 letters of total duration 6018 dots, each D1.
- (II) 800 spaces after letters, each (D1 + 2\*D2)
- (III) 200 spaces after words, each (D1 + 6\*D2).

This adds up to a total duration of  $(7018 \cdot D1 + 2800 \cdot D2)$ , which must be equated with  $200/W$  minutes, or  $12000/W$  seconds. D1 is already given by equation (I) above, and substitution of this leads to

$$D2 = 4286 - 3064 \text{ milliseconds.} \quad (2)$$

W = L

You can see that if  $W = L$  (for ITU Morse), equation (I) is recovered.

The pages of AR (and other magazines) have been well decorated with listings of computer programmes in recent months. The detailed code for generating dots and

spaces depends on the machine used, so I will refrain from giving my own programme, which uses the formulae derived above. However I will list its features, since any versatile programme for teaching and learning Morse code should have these:

*Division of the characters into 6 sub-sets A-G, H-M, N-T, U-Z, the 10 figures, and 4 punctuation marks (full stop, comma, oblique slash and question mark). While punctuation is not examined, these 4 are needed on air.*

*Character set for practice to be selectable from any combination (or all) of these 6 sub-sets, or from a string entered on the keyboard. This enables concentrated practice on any desired characters.*

*Choice of group (ie word) length, with option for random length (in the range 3 to 7 characters).*

*Independent choice of letter speed and word speed (both expressed in words per minute) using equations (1) and (2). Choice of number of groups in a "block" (ie message).*

*Use of standard START and STOP signals round each block of groups.*

*Output of ASCII characters for subsequent checking if desired.*

*Simple options for changing speed and number of groups without completely restarting the programme.*

*An automatic option in which the programme repeats after a pause of, say, 10 seconds. This is useful for generating cassette tapes.*

The actual dots and spaces are normally generated from programme loops. The cycle times of these loops depend on the machine used, and the expressions for D1 and D2 above must therefore be multiplied by conversion factors. The easiest way to set these conversion factors accurately is to choose a speed of 0.1 WPM and time the dots and spaces with a stop watch.

To achieve accurate Morse code it is necessary to write very compact programme code in the section which actually generates the audible characters. All possible repetitive calculations should be performed in advance of this. Using only interpretive (non-compiled) BASIC without machine code subroutines, I have been able to generate Morse code on a pocket computer up to 25 WPM before the spacings depart perceptibly from the ideal. Higher speeds are easily achieved using a machine code subroutine for the spaces.

#### REFERENCE

(I) "On Human Communication" by Colin Cherry MIT 1965.

#### Postscript

The word PARIS has sometimes been used to define a typical word for the purpose of calculating Morse speeds. Including four spaces between letters and one space between words, PARIS has a total length of fifty dots.

This corresponds to a dot length  $D1 = 1200/L$  milliseconds. Comparison with equation (I) shows only a 2 percent difference from the "correct" value of  $1222/L$  milliseconds.



## THUMBNAIL SKETCHES

### LYLE PATISON VK2ALU

When only 13 years old and living in Lane Cove, Lyle was introduced to radio by a family friend, Merv Morris, at Greenwich. Merv's home-made TRF fascinated young Patison to such an extent that Merv gave the lad some bits and pieces to keep him occupied. This led to the beginning of Lyle's lifetime hobby with radio. Starting with a crystal set (he still has some of the parts) he graduated through a TRF receiver to a seven valve superhet, on which he heard the declaration of WWII.

After gaining his intermediate certificate at 15, Lyle left school and joined RCS whilst awaiting an electrical apprenticeship with the Sydney City Council. Starting on the production line at RCS, his avid interest in radio soon had him promoted to their laboratory.

An opportunity for a position as an apprentice electrical operator in the railway Power Stations arose and Lyle found himself on shift at White Bay Power Station on April 1940.

The publishing of Radio and Hobbies in 1939 ed Lyle's interest into amateur radio. In between his trades technical courses and shift work, Lyle found time for self education in radio theory, regulations and Morse and he obtained his AOCP in March 1942 with 12 WPM, however WWII kept him off the air.

Lyle joined the Air Force Reserve in 1942 and started rigorous training in Morse under the

watchful tuition of Mrs McKenzie. He graduated to 20 WPM.

In March 1943 he joined the RAAF and departed to the UK via Canada to join an Illawarra Lancaster squadron as a navigator.

It was during this time that radar techniques attracted Lyle's attention — microwave, dishes, wave guides, klystrons, etc.

Lyle returned to civilian life in 1946.

Back to shift work at White Bay and doing an electrical diploma part-time, Lyle somehow found time for amateur radio and was first on air on 166 MHz on 29th June 1946 using CW.

In those days, Prices Radio in Angel Place, Sydney was the Mecca for amateurs and that's where all the "fancy disposals gear" was appearing. Soon Lyle had some of this gear cranked up on 576 MHz and was building what was possibly the first crystal controlled rig in Sydney on 144 MHz.

Promotion within his work took Lyle to country power stations in Cowra and Tamworth, with a short stint at Port Kembla, but he still managed to find time to work on the VHF bands — his major interest.

On his return to Wollongong in 1962 he became a foundation member of the reformed Illawarra ARS. Lyle spent a year as president in 1967/68 and still is actively involved in the club.

The CSIRO had its initial "large" radio telescope at Dapto but with the advent of time this was closed down and was lying idle. Lyle looked

longingly at the dish but the CSIRO donated it to the Wollongong University. Fortunately, the University knew nothing about radio telescopes but were keen to get it working. Lyle convinced them that the Illawarra club would be an ideal organisation to rejuvenate the dish and the first confirmed EME contact by VK2AMW was made on 10th March 1973, after many months of overhauling the dish and home-brewing gear for 432 MHz.

Vandalism forced the closure of activities for a time but Lyle found a new location and re-established the gear. He also made some new equipment suitable for operation on 1296 MHz.

As a result of his untiring and persistent work, with EME, the club station VK2AMW is well known internationally. Lyle received the Ross Wilkinson Award for his moonbounce activity this year and was also awarded life membership to the Illawarra Club for twenty three years of unstinting duty.

As Lyle retired from the workforce in 1984 he now has ample time to pursue his hobby??

Compiled from an article in The Propagator June 1985 which was written by Don Reynolds VK2ZBR.



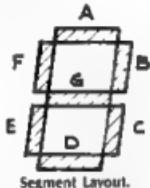
# ADD ON MODIFICATIONS FOR THE SIEMENS TELEPRINTER

Peter Fraser VK3ZPF

## A SHIFT INDICATOR

This is the first in a series of projects you can add to the Siemens Model 100 Mark 1 teleprinter. It will include a counter that shows how far from the left hand margin you are, a figures or letters shift indicator, and a power supply (built into your machine) to run the add ons. To construct these you will need a soldering iron, solder, pieces of matrix board and lots of patience. Now what RTTY'er hasn't got that?

The indicator uses a 7 segment display to show either an 'L' for letters or an 'F' for figures depending upon the shift you are in. The display used by the author was a FND 500, a 'common cathode' device. Any 'common cathode' display could be used, but I found the FND 500 was large and the easiest to read.



## CONSTRUCTION

The display is mounted on a piece of matrix board, fastened to a strip of aluminium which can be screwed to the right-hand side of the platen. It should be mounted so you can see it easily through the glass when the cover is down. The

QSP



## MORE HISTORY

The Institute wishes to thank Clem Scott VK4DW for his generous donation of an article from TECHNICS magazine.

Following is Clem's covering letter. This Historical Article is from an old TECHNIKS magazine published in 1905 which I have had in my possession for some forty years.

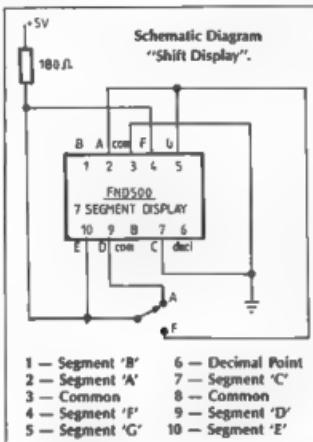
On reading the Paper we find that Prof. Fleming first demonstrated and described the vacuum valve later called a diode in an article to the Royal Society in 1899.

The author then goes on telling of the consequences of the fact that incandescent carbon and metals send out vast numbers of electrons. Then with circuits relevant to the occasion explains in a very clear manner the results of same.

If you don't already have this article then I hope it can be of some enjoyment to those who go to your library for a quiet read of some of the history of those experimenters who paved the way for us fellows who are now enjoying amateur radio.

Thank you for a

Chem Scott VK4DW,  
18 Cullen Street,



180 ohm resistor is best mounted on the power supply board (to be described later in this series).

## HOW IT WORKS

Segments 'E' and 'F' are wired 'on' at all times and through SW1 segments 'D' is left to represent an 'L' when in letter shift. In figure shift segments 'A' and 'G' are lit to show an 'F'. The +5V is taken from the power supply. SW1 is a m-cro switch mounted in such a way that, when the carriage goes up and down, the switch also goes on and off. The switch can be mounted on a right angle bracket fashioned from tinplate or aluminium, then screwed, using the existing screws, to the rear frame of the machine. A suitable place for the switch is in the middle of the back frame above the motor. Here, if you look, you will see a lever that pokes in and out as the carriage goes up and down. The switch needs to be bent so that it follows the travel of this lever and switches as the different shift are selected.

So that's the 'shift indicator' which, when fitted, is very handy if you are distracted halfway through something and don't know if you are up or down.

Next in this series is a power supply to run the indicator and a counter to be described later.

**SCIENCE**  
A MAGAZINE TO AID TECHNICAL PROGRESS.

## THE TCA 1675/1677, A CHEAP LINEAR AMP

Lloyd Butler VK5BR

18 Ottawa Avenue, Panorama, SA 5041

If you have a spare 1675 or 1677 in the shack, the final stage of the transmitter can easily be utilised as a linear amplifier to boost the power of your low power 2 metre or 6 metre equipment. There are quite a few units about for sale, at low prices, if you wish to acquire one for the job.

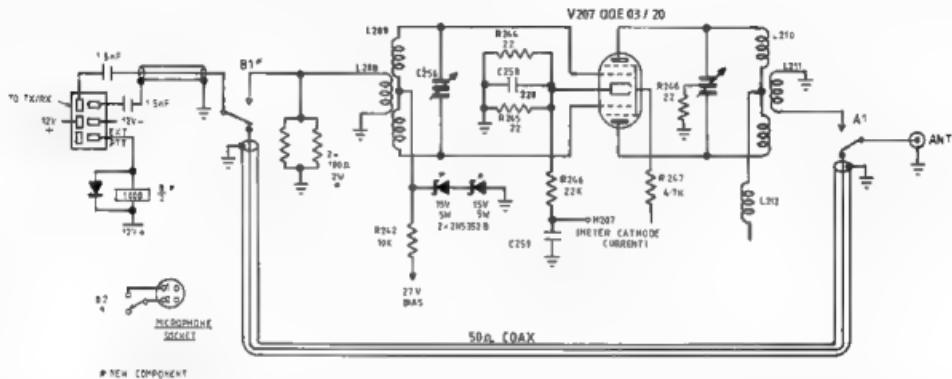


Figure 1 — Use of the 1675/1677 PA as a linear amplifier

To operate an RF power amplifier valve in a linear mode the following must be satisfied

Grid bias must be set, approaching plate current cut-off, so that the stage is operated in class AB2 or class B.

The grid bias supply voltage must be stabilised so that it does not rise when the signal voltage swings positive and causes grid current to flow. Loading of the RF drive source with a low resistance is required to stabilise the grid load and prevent grid current flow from flattening the waveform.

In the case of the 1675/1677 the transistor power supply provides high tension of about 250V and 550V and a b as supply of around 26 to 28V The b as voltage works out nicely to operate the QQE 03/20 ampifier in class AB, and this bias is stabilized by series connecting two 15V, 3 watt zener diodes at the grid feed point, centre tap of

Two parallel connected 100 ohm 2 watt composition resistors are connected across the primary of the grid coil L208. This correctly terminates the 50 ohm coax link from the transmitter driving source and loads the grid circuit to prevent clipping during positive signal peaks due to grid current flow.

The modified final amplifier stage is shown in figure 1. The existing relay A provides transmit/receive switching for the amplifier RF output but an additional 12V relay B must be added to also switch the amplifier input. Coil L208 is disconnected from the previous stage and connected to contacts B1 to provide input switching. Normal contacts of A1 and B1 link the antenna circuit for receiving. A further set of contacts, B2, connect to the 1675/77 PTT circuit at the microphone socket to turn on the power supply when switched to transmit.

The frequency multiplier stage valves, 12AT7 and

QQEO2/5, are withdrawn from their sockets. The 12V supply to the transistor stages in the remainder of the transceiver can be disconnected, if desired, but it doesn't really matter as they consume little current.

If the 1675/1677 has not been previously modified for amateur band use, some changes might have to be made to the tuning range of L209-C256 and L210-C261. If a harmonic filter (L217, L218, C278-280) is fitted this should be disconnected. (Modifications to the tuned circuit are well described in *Amateur Radio*, July 1973.)

The circuit has worked well on 6 metres using an IC502 as the driving source. With one watt of peak envelope driving power, the amplifier delivers about 20 to 30 watts PEP to the antenna. Equal performance is anticipated on 2 metres.



## TRY THIS

Reading Roy Hartkopf's article about circuit board etching thought it worth mentioning an alternative type of etchant for circuit boards. It seems most people use Ferric Chloride, as have I. That is, I have suffered from one drawback, namely

## ETCHING CIRCUIT BOARDS

you can't see what's going on. There is a solution, if you'll pardon the pun. Use a solution of Hydrogen Peroxide and Hydrochloric Acid, about equal parts of equal concentration.

The chemistry is quite simple, the Hydrogen Peroxide reacts with the copper producing Copper Oxide, which is then dissolved by the Hydrochloric Acid producing a pale green solution of Copper Chloride through which the process

Bevan Hay VK4ABV  
346, Nanango, Qld 4315

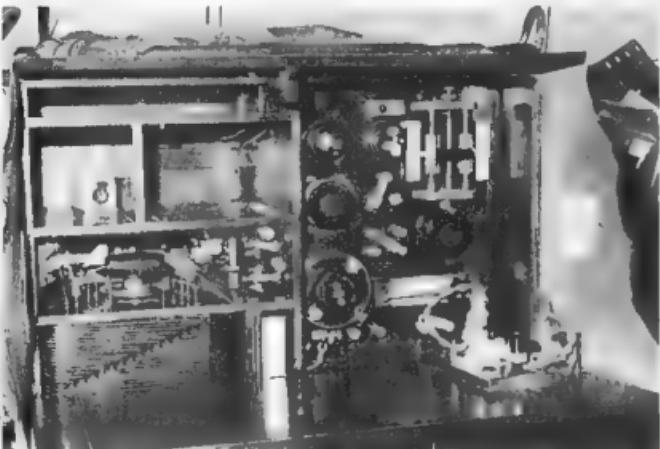
of the etching can easily be seen. I usually do it with a fairly concentrated acid and peroxide for fast results, though this is not necessary and good results can be obtained from dilute solutions.

If you use concentrated Hydrochloric Acid I strongly recommend that the job be done out-of-doors as the fumes from concentrated Hydrochloric Acid are very strong.

# A LITTLE ABOUT WIRELESS IN THE FIRST WORLD WAR



The particular spark transmitter and receiver, photographed and described on this page, was one of six built by Marconi of London in 1915 and sent to Australia for use in the first world war. This unit was used in 1916 by signallers at the Mitcham Army Camp in South Australia before being sent to Melbourne to be packed for despatch overseas.



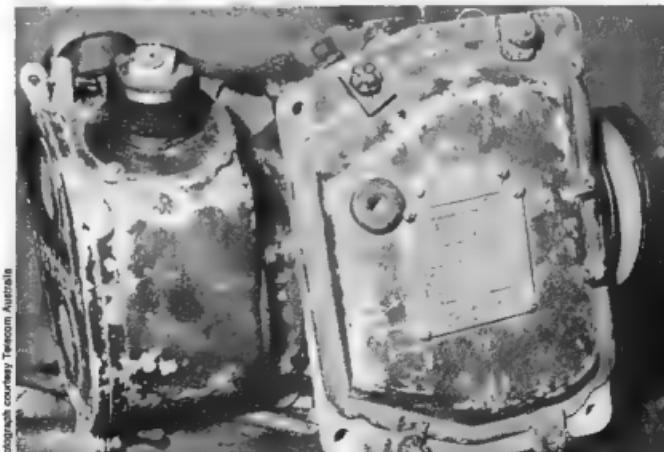
The transmitter and receiver ready for operation.

The 'portable wireless sets' were considered marvels of their time, for their compactness and lightness. They weighed about 330 lb (150kg) each. A unit could be set up ready for operation within ten minutes by five or six men and once set up required two men to operate it. It had a guaranteed daylight range of 35 miles (56km) but in daylight it could work two to three times that distance and at night up to 200 or 300 miles (322-483km).

The transmitter was a 0.5kW rotary spark set driven by a Douglas air-cooled petrol engine with a solid flywheel. It was the same engine Douglas used in their motor bikes at that time. It ran at 1800 rpm.

The receiver employed a carbonundum crystal detector with bias provided by a couple of dry cells through a potentiometer and was designed to operate from 300-1300 metres by the operation of a band change switch. It was fitted with two galena crystal detectors.

The transmitter unit was located in the bottom section of the equipment case and contained an iron core transformer connected to the alternator by a flexible cable, tubular Leyland jar type condensers, RF chokes and the HF closed circuit. The receiver, operating controls and key were contained in the top section. To quieten the spark in operation, a metal cover was fitted over the rotary gap section.



The AC Generator used to power the set. This was driven by a 2.75 HP Douglas Industrial Engine.

In December 1915, urgent cables were received in Australia and New Zealand from India, asking for the loan of men to help out the scanty communications of India's Expeditionary Force "D" which was operating in Mesopotamia.

Both countries responded and offered to supply and maintain complete wireless units in the field.

So the 1st Pack Wireless Signal Troop was formed with one officer and 54 other ranks from NSW and Victoria. This Troop arrived in Mesopotamia on 19th March 1916 and on 18th April a New Zealand troop arrived. Both troops were camped at Makina a short distance from Basra. Each troop supplied four pack wireless stations.

On 25th April, the first Australian station went up river and attached itself to the 15th Division at Khamisayah, on the Euphrates.

In March 1916, the Imperial Authorities asked the Commonwealth to increase the wireless establishment at Mesopotamia, which resulted in the 1st Australian Wireless Signal Squadron being formed. It arrived in Mesopotamia on 6th July 1916. The Australian and NZ troops already there were absorbed into this Squadron and they soon became known as "The Anzac Wireless".

As the army moved up the Tigris and the Euphrates, so too did the wireless. The Cavalry



Division had three pack sets and maintained continuous contact with headquarters whilst the cavalry was on the move. This meant that one station at a time hauled, erected its two masts, cleared its traffic, dismantled, packed up and galloped with the cavalry rear-guard, who had waited for it, to catch up with the main body of the Division.

So as the army advanced into Baghdad and beyond into Persia, so too did the wireless stations. All messages were in five letter cipher, no plain

English and the letter 'V' was used for 'from', not 'DE' as is used today.

As well as the unit described above another unit, a 1.5kW Wagon set was used. This receiver was similar to the one above but the transmitter had a 7HP water cooled engine, also made by Douglas. The alternator and components were larger, also.

Throughout the service of the wireless operators in Mesopotamia and Persia thousands of messages were transmitted and received, which were of vital



Photographs courtesy Telecom Australia

A very portable transceiver? The spark transmitter and receiver in its carry case.

importance to the Army operations, without delay or error.

A large portion of the operators were ex Post Office or Railway Telegraph operators but quite a few were "Wireless Hams" or in today's language radio amateurs.

References: "Wireless in the 1914/18 War" by the late Arnold Holtz VK3DH "The History of Radio in South Australia" by John F. Ross.

Compiled by Bert McLachlan from material submitted by Jim Davies VK7OW

Photographs courtesy Jim Davies VK7OW

AR



## TRY THIS

Sam Pascoe VK6KSP.

45 Nicholson Road, Subiaco, WA 6008

### YAESU FT-480R TWO METRE TRANSCEIVER — A simple modification

I was discussing the various pros and cons of the FT-480R on air recently and mentioned my disappointment at the lack of a 'reverse' switch. This switch provides the ability to listen to the repeater input frequency as an alternative to the output. Jack VK6BU mentioned that on all FT-480R units that he was aware of, the careful and SLOW movement of the satellite switch achieves this.

After a lot of jiggling of the switch, I found that my rig was an exception to this rule. So, out came the circuit diagrams and a short time later I was able to make a reasonable guess as to what was happening.

The following diagrams show the modifications that have been made.



Figure 1: The Original.

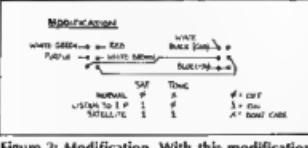


Figure 2: Modification. With this modification transmission is disabled while listening.

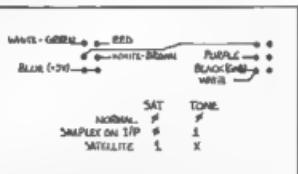


Figure 3: Alternative. (Possibly a better one). With this modification transmission is enabled in simplex on the U/P frequency when the TONE switch is in the ON position.

Underneath the rig is a small panel supporting three switches, labelled Satellite, Scan and Tone. All mods are made directly on two of these switches. The only disadvantage (possibly) is that the tone burst on/off function is lost. In the diagram it is shown permanently wired to the OFF position. To make it permanently ON just disconnect and tape up the white lead to the tone position.

Note: All diagrams are viewed from the solder lug side.

## QSP

### LOW COST SIGNALLING SYSTEM FOR LITTLE USED RAILWAYS

An electronic token signalling system to be installed on British Rail's East Suffolk line between Ipswich and Lowestoft in eastern England could also be ideal for lightly used railway lines throughout the world.

For railways with only a few trains in each direction per day, replacement of old or obsolete signalling may be out of the question, but an electronic token system could be installed to keep these lines open and improve their operating efficiency.

The system is operated from one signal box which is in contact by radio with each train under its area of control. The line is divided into sections with 'Stop and exchange token' boards to mark the end of each section. Before a train is authorised to proceed into a particular section it must have received the electronic token for that stretch of line.

Such tokens can only be transferred to long distance co-operative procedures between signaller and driver. Each train is fitted with a cab unit which has a unique identity number. The electronic tokens are transmitted by radio in the form of coded data messages and on receipt are displayed by suitable messages on the visual display unit in the train drivers cab.

A computer-controlled solid-state interlocking (SSI) ensures that only one electronic token can be issued to each unique train unit. Before an electronic token is issued the SSI also ensures that the particular token has not already been issued to another train and so that no token for a conflicting movement has been issued to any train.

With passenger safety always of paramount importance, the computer network is triplicated to guard against malfunctions. At least two out of the three computers must output identical information before an electronic token can be issued.

The equipment to be supplied to British Rail by GEC-General Signal Limited comprises the main signal box equipment (including the SSI cabinet) plus 24 train cab units. It is also planned to equip Civil Engineers' vehicles with electronic token equipment for authorisation of track maintenance possessions.

from Information Technology from Britain

## 75th Nostalgia

The following article is from the VK2 Divisional Archives and is contributed by Tim Mills VK2ZTM. Written by the then President of VK2, Charles MacLurcan A2CM, it looks towards the future for wireless and the WIA from the 1920s era, possibly written around 1923. Much of the article still applies today, particularly the reference to amateurs "uniting in the Wireless Institute." It is also interesting to note the Patron at this time.



# The Wireless Institute of Australia

(NSW DIVISION)  
Charles D MacLurcan (President)

Wireless development needs as its strongest factor every encouragement given to experimenting and in this respect the Australian system covering broadcasting is practically the most liberal in the world, in as much as it gives a free hand to broadcasters, provided of course, they do not encroach upon the regulations under which broadcasting is carried out.

It, however behoves all Australian experimenters to work together, not only in experimental work and to improve the utilisation of wireless, but also in order to see that every encouragement is given to the public to partake of the advantages of wireless as offered them by legitimate broadcasting concerns; hence experimenters, by having such a great trust placed in them by the Government authorities, will return the compliment by doing all in their power to see that the arrangements are given best test.

With the remarkable development of wireless in the last decade we can look for still further developments in the near future, hence the broadcasters must ever be on the alert to peer into future developments and so put on record the advantages won in their experimental work.

There are many problems that they must face, for instance the overcoming of the weakening of wave power by statics, and also solving the problem regarding the one way inefficiency of messages between two certain points, particularly where equatorial districts have to be covered.

By being classed as an experimenter in wireless no mean privilege is given to such, because such are really on the verge of a future which practically lifts humanity into the ethereal and is really man's first touch with the infinite given in practice instead of theory.

We, as experimenters in this great science, feel we are specially privileged and we trust that while we enjoy same it shall have something placed on record to merit the honor that has been given us.

The direction of the future developments of wireless will cover such problems as the direction of aerial traffic, the transmission of natural colored photography, and practically the solving of that glorious forecast, the speaking with one voice that can reverberate round the earth.

Experimenters, therefore, have a great responsibility and they can best protect that responsibility by uniting in the Wireless Institute.

It has been said that "There's many a slip 'twix the cup and the lip." How truly applicable is that old quotation to the many vicissitudes which have beset the Institute during the fourteen years of its existence.

Inaugurated in 1910, March of that year to be exact, the then Wireless Institute of New South Wales was the first Technical Radio Association to be formed within the British Empire, and the ambitions of the enthusiasts though small band of original experimenters in this wonderful science have been more than realised by the position of the Institute to-day in the very front rank of Scientific Societies.

If only that small band of originals had been able to lift the veil of the future when they took the initial step of forming this Society, they would

have been amazed by the intricate tangles in store for their successors in the years to follow. In that regard it is most gratifying that a round dozen of them are still actively associated with what has now become the New South Wales Division of the Wireless Institute of Australia.

Courage, determination and sincerity are the three outstanding qualifications of the Institute to-day as in the past, and recent events have proved that the faith of the Institute's founders in the righteousness of their cause, has been retained as one of the most precious possessions throughout the Institute's existence.

The principal objects underlying the formation and administration of the Institute may be briefly summed up as follows:—

- (a) For the Association interested in the encouragement and scientific development of radio communication in all its branches.
- (b) To provide a centre of information, instruction and advice on all matters pertaining to radio communication.
- (c) To consider, originate and promote reform and improvements in the law; to consider proposed alterations and oppose or support same, to effect improvement in the administration of the law, and for the said purposes to petition Parliament or take such other proceedings as may be deemed expedient.

In regard to (a) and (b) the results so far achieved speak for themselves. In regard to (c) the Institute has always played its part fairly and has been responsible in very great measure for the development that has taken place in Australia.

Earlier in this year the Institute conducted a series of tests receiving signals transmitted from experimenters in the United States, the power used at the transmitting end being only 100 watts. The great success obtained prompted the Institute to go further, and a series of tests have just been concluded wherein American experimenters again transmitted to Australians, and the local experimenters transmitted back on the same low power, 100 watts. Although the results of this latter test are not yet definite from the point of view of Americans receiving the Australians, still it is gratifying to know that 88 stations in the States have been logged in Sydney and Melbourne.

When broadcasting was first seriously considered in Australia, the Institute took a prominent part in the compilation of the regulations to suit local conditions, and it is felt that the best possible steps have been taken in Australia to place this wonderful feature of radio on a comprehensive basis to suit local conditions and avoid the many complications which have occurred in other countries.

The severe test came when war broke out in 1914. The shortage of wireless operators for military and transport purposes was acute, and it is a matter of history that seventy-five percent of the then Institute members were immediately absorbed on emergency active service. There were but few of the Institute's members who, on account of age, were not absorbed in war service, and the value of such men in time of national crisis was and ever will be invaluable.



Charles D MacLurcan.

Patriotism is very dear to the Wireless Institute and one of the principal requirements before admission to membership is that candidates must be of British nationality. Other qualifications and conditions of membership, as well as annual subscriptions are compatible with the standard to which the Institute has attained.

There is a distinct division of the Institute in each State of the Commonwealth with headquarters in all the capital cities, and with the incidence of the Australasian Radio Relay League, it is anticipated that the co-operation between Divisions will be greatly enhanced. The keen co-operation between interstate divisions in the past has been of the greatest possible advantage to experimental work and the projected activities of the immediate future will require complete union and much hard work on the part of all concerned.

Of the Executive of the Institute to-day, of which I have the honour to be president, I cannot say too much in praise of their self-sacrifice in doing all in their power to help the cause of wireless to still better opportunities, and in justice to them, it is only fair that their names be put on record —

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Charles D MacLurcan

Senatore Marconi, Patron,

President

# DE-REGULATION AND SELF-REGULATION: WHAT DOES IT MEAN?

Allan Foxcroft, VK3AE  
FEDERAL COUNCILLOR

Nowadays 'de-regulation' has become almost a 'catch cry' in Government administration — for example, the de-regulation of the Australian Banking System and proposals for similar action in the Dairy Industry have brought the subject to the public notice. It may come as a surprise to some readers that the WIA has had de-regulation and self-regulation as an endorsed forward planning objective since 1981 when the Federal Convention decided officially to "aim for deregulation and self-regulation in negotiations" (with the DOC). Unfortunately, the two terms sometimes tend to be regarded as interchangeable and some misunderstanding can result if one does not clearly differentiate between the two.

## EASING OF FORMAL REGULATION

The term de-regulation implies the easing of the formal regulation of amateur radio — the streamlining of regulations and the elimination of rules that are unnecessarily restrictive or no longer applicable to present-day conditions. This can be a useful and productive exercise, but to my mind it does not get at the major question *ie* how the service should be regulated after the dead wood has been removed.

We should be concentrating most attention on the transfer of much of the responsibility for the orderly conduct of our hobby from the licensing authority to the amateur himself, ie self-regulation more than de-regulation. Of course a basic framework of regulations must continue to be applied by the DOC — the formal licensing of operators in the service, the allocation of frequency bands and co-ordination with other services are activities which appear more appropriate to the licensing authority. Nevertheless, there are a number of "regulations" dealing with conduct and procedures which could be self-administered, more in the form of guidelines than as conventional regulations.

## WE SHOULD BE GETTING TOUGHER

Naturally there are opponents to the easing of formal control of the service, in fact some with rather extreme views would no doubt prefer to see a tightening up of the regulations. "We should be getting tougher on offensive behaviour of all kinds"; "We should be making the observance of WIA Band Plans obligatory rather than gentlemen's agreements, as at present"; "We should increase control on the use of repeaters" and so on. Yet — by all means let us campaign strongly against undesirable features of amateur conduct, but NOT by the introduction of increasingly formal regulations by the DOC. Instead we should be building up the self-discipline of the Amateur Service by education and by improving, in a friendly, co-operative manner, the operating conditions of our service.

## ONLY TAKE PLACE BY GOODWILL

First and foremost, the process of self-regulation can only take place and be sustained by continuing goodwill and mutual confidence

between DOC and the amateur body as a whole. It must be engendered by clear demonstration of a highly responsible attitude and a willingness and ability of the amateur fraternity to control its own affairs in a competent and effective manner. We are fortunate that currently this most important ingredient for change is present. There is a tremendous goodwill between the DOC and the WIA — backed by a very genuine and sympathetic desire on the part of the DOC Radio Frequency Management Division to regulate in the best interests of amateur radio.

## SHIFT THE BLAME

An example of this attitude can be found in the DOC approach to the solution of Electromagnetic Compatibility and immunity problems. Not so long ago, when interference (other than harmonics and spurious emissions) was "caused" by a licensed amateur station to domestic electronic equipment, the onus for clearance of the problem was almost automatically placed on the amateur station rather than on the recipient of the interference. The present and commendable attitude of the DOC is to shift the "blame" to where it should generally reside — with the electrical equipment manufacturer or the installer who has failed to provide adequate immunity to high RF fields.

The changes which we envisage cannot take place without added responsibility being placed on the amateur bodies — particularly the WIA. They must become even more responsive to the needs of all amateurs — to represent overall amateur views more accurately and to take all views into account when speaking and acting as the amateur representative. An increase in the percentage amateur membership of the WIA is most desirable — but more importantly the organisation and administration of the WIA must be tightened up to meet these needs.

## CENTRAL CO-ORDINATOR

I must respond to those who express concern that the WIA does not adequately recognise the rights of non-members to their independent views and should not seek to act on behalf of all amateurs. It is a fact of life that an organisation such as the WIA, able to claim better than fifty percent representation of Australian amateurs and able to speak with one voice will be heeded more than individuals. If the democratic process of consensus is to be pursued, there must always exist some central co-ordinating body. Moreover, if a greater degree of self-regulation is to be applied in the Amateur Service, there will be even greater pressure for that co-ordinating body to possess the strength and ability to represent a majority view of amateurs, of which only the WIA is capable.

The concern of non-members can be eased by a concerted effort to improve the representation and responsiveness of the WIA to overall amateur needs as mentioned previously. This is no mean task when one recognises the great diversity and even conflict of interests to be represented

Amateur radio is, in fact, many hobbies with a hobby and all should be considered and given their appropriate weighting. We should continue to prepare and administer band plans for amateur frequency allocations, with perhaps greater firmness than heretofore — we should be co-ordinating the use of bands above 30 MHz to ensure that the most effective use is made of the techniques at present available (here I must stress the word "co-ordinate" in contrast with controlling or directing, which should be reserved to only where absolutely necessary). We should be fostering and again "co-ordinating" the introduction of new techniques — ensuring that flexible procedural guidelines are available where required and that they are directed to the greatest possible benefit for the majority of experiments.

## GREATER DISCIPLINE

So, to conclude, let's summarise what self-regulation should mean to the Amateur Service. It is not an easy road to follow. It calls for greater self-discipline by all active amateurs. It calls for a greater awareness of the objectives and values of the amateur service by its members as a whole and a tolerance for "the other fellow" who may wish to pursue a facet of the hobby totally different from one's own inclination.

If the WIA is to spearhead the trend, (as it should), then it must receive greater support by amateurs in terms of membership numbers. It is organisation and lines of communication that should be improved to ensure that it is a viable body to speak with authority for the whole of the amateur population. We must always act in a responsible, tolerant and professional manner in all forums at which the amateur interests are to be represented and by clearly demonstrated competence, foster the wholehearted support of the licensing authority, the amateur and the industry as a whole. *What do you think?*

## SKY HIGH PIRATES CONVICTED

A plumbing company has been convicted for illegally using amateur hand held two metre transceivers.

In the Melbourne Magistrate's Court on 13 June J L Williams Pty Ltd pleaded guilty to six identical charges.

The Department of Communications prosecuted the firm under the Wireless Telegraphy Act for using an appliance without authorisation for the purpose of transmitting messages.

The court case followed a visit by DOC officers to the tallest building in the southern hemisphere — the Rialto in Collins Street.

In the raid on 1 February, DOC seized six transceivers which were operating on 144.495 MHz. They were being used for communication by workers installing air-conditioning.

The company was fined a total of \$110 and the units were forfeited.

# THE STORY OF OSCAR 10

Visit by Dr Karl Meinzer DJ4ZC to Australia

Bill Rice VK3ABP

54 Maistone Street, Altona, Vic. 3018

The WIA was notified in April 1985 that one of the leading participants in the development of the Phase 3 amateur satellite, which is now operational as OSCAR 10, was to visit Australia during May. Dr Karl Meinzer DJ4ZC had been invited to address the ZL Convention in Christchurch over the weekend of 1-2 June, during a round-the-world trip, and was invited by Graham Ratcliff VK5AGR (our AMSAT Co-ordinator) to add Australia to his itinerary. In a very busy week at the end of May DJ4ZC addressed meetings of amateur satellite enthusiasts in Adelaide, Melbourne and Sydney. The Melbourne meeting was held on 28th May at the Box Hill College of TAFE, the venue being arranged at rather short notice by the Eastern and Mountain Districts Radio Club in conjunction with the VK3 Division and the Federal Office.



David VK3ADW introduced Karl DJ4ZC to the audience.

Karl was introduced to the audience of about 55 people by the Federal President, David Ward VK3ADW, and Jack O'Shannassy VK3SP, representing EMORDC. He then outlined the history of the Phase 3 project from its beginning as a joint concept by himself and Jan King W3GEY in 1973. It was intended to go into a high-level sub-synchronous orbit at an incln of 57 degrees, with 50 watt transponders enabling good coverage of a large part of the world at any one time, the actual reg on changing slowly as the earth rotated within the orbit. Transponders were proposed for Mode B (70 cm up, 2 m down), with an onboard computer controlling a built-in propulsion system for optimising the orbit, as well as housekeeping functions (transponder scheduling, solar power budget, engineering telemetry, etc)

## GLOOM:

After years of hard work, mostly by the AMSAT-DL organisation, but also involving AMSAT-USA, NASA and ESA, the satellite, plus commercial payloads, lifted off in 1980 from Kourou in French Guiana aboard the second of the Ariane series of rockets. A faulty fuel valve caused premature first stage shutdown, and many millions of dollars worth of hardware plunged into the South Atlantic!

The West German Government was then persuaded to grant sufficient funds to AMSAT to build a replacement satellite. Karl appears to be not on a technical genius but also a political and financial wizard! The new satellite, improved by the addition of a Mode L transponder (23 cm up,

70 cm down) was launched in June 1983 by a more successful Ariane. However a bump just after separation upset the attitude, bent an antenna, and restricted the supply of fuel for manoeuvring. The inclination eventually achieved was only 26 degrees rather than the wanted 57, and the orbit was more elliptical than desired.

## INSURANCE

Learning from the disastrous first attempt, the second satellite was covered by very comprehensive insurance, one clause of which defined the mission as unsuccessful if the inclination was less than 30 degrees. The payout from this has permitted construction of a further Phase 3 satellite to proceed. In the meantime it has been possible to manoeuvre OSCAR 10 into the best possible attitude consistent with its low inclination angle, and communication through it has been readily possible for over a year. However, its sensitivity is about 20 dB down on specification for the Mode L transponder and power will be restricted by frequent long eclipses later this year as the orbit causes the satellite to be in the earth's shadow for up to 3 hours at a time. The attitude needs to be changed twice a year to minimise its effect on solar illumination; and the elliptic orbit involves passage through the earth's radiation belts twice a year, which will shorten the useful life of much of the electronics, particularly the computer memories.

## VIDEO

Karl's presentation was supported by a 45 minute video-cassette of the OSCAR 10 story. This was mainly produced by Werner Haas DJ5KQ and covered all aspects from concept to launch in a most informative style. Several interesting items were gleaned here; OSCAR 10 is spin-stabilised at 35 RPM, its development and testing involved the University of Marburg, the Max Planck Institute, NASA and the ESA Kourou complex; the Ariane take-off thrust is 2445 kilonewtons and its mass 207 tonnes (from which may be deduced an initial acceleration of 1.2 G, less the earth's 1.0 G, so only 0.2 G or 2 metres per second at lift-off), the payload is 2 tonnes and the vehicle takes 14 minutes to reach the altitude where the

payloads separate and are left to their own devices. Video coverage of the Kourou installation and of the actual lift-off was especially interesting.

## FUTURE

An improved version of the present satellite is intended, hopefully with an overall 10 dB improvement in transponder gain, so that the necessary ground ERP will be possible from mobile antennas. There will also be a digital communication experimental system for the packet radio buffs.

The next generation (Phase 4) will involve higher gain antennas, 250 watt transponders, and larger solar cell panels to provide the DC power. One most intriguing suggestion is the use of electrically heated water vapour jets for manoeuvring. Water is of course much cheaper than hydrazine and



Karl explains the operations of a pocket computer to gain OSCAR 10 information.

other exotic fuels, and can be carried on a manned craft such as the Shuttle. One might envisage a low-level Shuttle launch, the satellite then propelling itself into a much higher orbit, taking weeks if necessary, steaming outwards into space!

## QUESTIONS

At the conclusion of Karl's address there were several questions from the floor. These involved the expected life of OSCAR 10, access by mobile stations, commercial support, launch vehicles other than Ariane, possibility of amateur geostationary orbits, ease of access, polarisation, and launch timing for the 10 dB improved version.

In reply, Karl said that at least 3 years was expected of OSCAR 10 (in spite of some experts who said it would not last 2 days, and have already been proved completely wrong!). Access might be possible to later satellites by hand-held SSB sets. Even now many signals into OSCAR 10 are 20 dB stronger than needed and users must be educated to use the minimum necessary power.

Commercial support is not great, as there is little commonality of aims between the professionals,

who require high reliability no matter what it costs, and amateurs, who require a limited capability on a shoestring budget. Ariane remains the most appropriate launch vehicle, but the proposed water vapour propulsion may make a low-level Shuttle launch possible, although expensive. The Amateur Service could perhaps afford one geostationary satellite, but the three or four necessary to cover the whole world would probably be beyond our means.

It was agreed that a satellite system easily accessible even to hand-holds might raise serious problems, although the American philosophy is towards this aim. No change is proposed to the present circular polarisation sense, and the next improved OSCAR may be launched in 1989 or 1990.

In conclusion, VK3ADW thanked DJ4ZC for his notable contributions to the amateur satellite service and his willingness to address us, and presented him with several appropriate momentos of his visit, including an embossed leather binder containing some recent issues of AR.



## EXPANSION OF SBS TV INTO UHF

As previously announced the channel 0 transmissions for SBS TV will terminate on 5th January 1986. All future expansion of this service will be on UHF. The use of channel 0 however remains for other TV services.

The UHF SBS channels to be used include:

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Ch 56 Kings Cross — Goulburn — Cooma — Tuggeranong in VK1 and Warburton and Marysville in VK3  
Ch 59 Wollongong in July 1985  
Ch 61 Gold Coast.

Contributed by Tim Mills VK2ZTM.

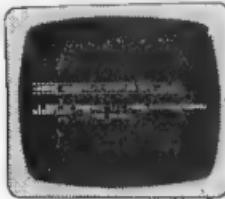
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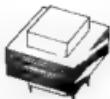
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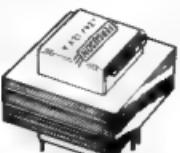
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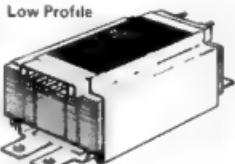


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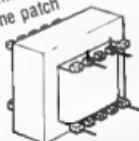
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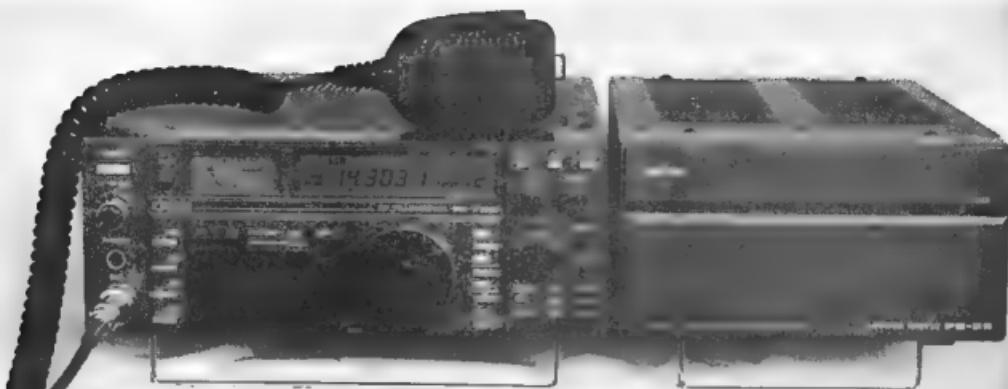
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TECHNICAL EDITOR

## ICOM IC-735 ALL MODE HF TRANSCEIVER

The C-735 replaces the well known Icom IC-730. It seems that the days of transceivers that only cover the amateur bands on receive have long gone and the 735 therefore has a general coverage receiver. The 730 appeared on the Australian market in early 1982 and was reviewed in the April 1982 issue of Amateur Radio. It has continued in production ever since and I believe that there has been a steady demand for it. It has been regularly advertised in American magazine but it's quite a while since I have seen a local advertisement for it.

In its basic concept, the 735 fills the same role as the 730 with a compact transceiver for portable or mobile operation, fully solid state no tune up design and amateur band coverage from 160 to 10 metres and operates from a 13.8 V DC source. It is packaged in a cabinet of identical dimensions to the 730, 94mm high, 241mm wide and 239mm deep (less projections) but weighs less, 5.05kg as against 6.4kg for the older model.

The big difference is what is inside the cabinet. First is the general coverage receiver. This covers from 100kHz to 30 MHz. Tuning is continuous over this range with the choice of stepping in 1 MHz segments or in amateur band segments. Add to this an all mode capability for AM, FM, SSB and CW and you can see we have a very complete package. All controls are on the front panel.

If you refer to the review of the 730, you will see there were a few complaints about the accessibility of controls under the top hatch. This hatch has disappeared and all of the lesser used controls are on the front panel behind a drop down semi-transparent plastic panel. Very neat. Also commented on was the matching AC power supply in fact did not match instead of presenting a smooth line up, it looked more like the side elevation of a camel train. But no more, Icom have produced a power supply, the PS-55, which matches the IC-735 in both size and colour. An automatic antenna tuner is also available in matching format.

Frequency, mode, VFO and memory information are presented by means of a large LCD display. To my knowledge, this is a first on an HF transceiver, but several excellent LCD displays have been used on VHF FM transceivers. In more detail, the display

shows the following, frequency display to 100Hz resolution, VFO A or B, mode of operation AM, FM, USB, LSB or FM, transmit or receive status, scan mode, memory channel selected and split frequency operation. It is illuminated in a soft translucent green. The 'S' meter is also illuminated in a soft green but I found it lacking in contrast. Twelve memory channels are provided. Both mode and frequency information can be stored and each can be individually tuned across the full 30 MHz tuning range. In effect this gives 14 independent VFOs. All VFO and memory information is retained when the power supply is removed by use of an internal lithium battery.

The 735 has an excellent notch filter that can be used with any mode, including AM, and is quite capable of taking out the carrier on a local broadcast station. Other performance information is included in the test section of this review.

As mentioned earlier, the 735 is housed in much the same cabinet as the 730, however removing the

top half of the cabinet reveals that the appearance is only skin deep. Underneath is a cast heat sink that takes up the entire depth of the transceiver. A miniature centrifugal fan mounted towards the front of the heat sink draws air in from the rear. The fan operates as soon as the transmitter is keyed and shifts to a higher speed after a few minutes operation. It is fairly quiet but to my ear operates at an annoying pitch.

Icom have sped up the tuning rate slightly from previous models as the 735 covers 2.5kHz per turn, knob revolution as against 2kHz on the older models. Turning the knob faster than about one revolution per second increases this to 5kHz per turn. One kHz stepping can be switch selected which gives a rate of 100kHz per knob revolution. An input to enable the 735 to be remote controlled by a computer is included called the 'Advanced Remote Control System'.

It is claimed that frequency, mode, VFO A/B selection and memory select can be controlled by the computer when an appropriate interface is used. There is no information on what this is. It is also stated that the serial port uses a standard 1200 baud data rate.

Let's look a little closer at the scanning and memory system. The 735 has twelve memories which store both frequency and mode. The memories are fully tunable, it is not necessary to transfer them to one of the VFOs, just select the required memory and tune up or down in the usual way. The memories are selected by first pushing the 'MEMO' button and then selecting the required channel with the memory up/down buttons. Unfortunately memories cannot be changed by using the up/down buttons on the microphone. This only causes the frequency of the memory to change. Pushing the scan button starts the memory scan with a hold time of each about two seconds. It is possible to scan the complete memories or scan in any selected mode. Memories 11 and 12 can be used to set the limits of a programmed band scan. In general the scanning works quite well and certainly very much better than the scanning in the IC-745.

The CW operator has been given quite a bit of thought by the designers. Provision has been made

The IC-735 with the top cover removed to reveal the heatsink and speaker.



Front panel of the unit with the 'hatch' open to display all the controls.

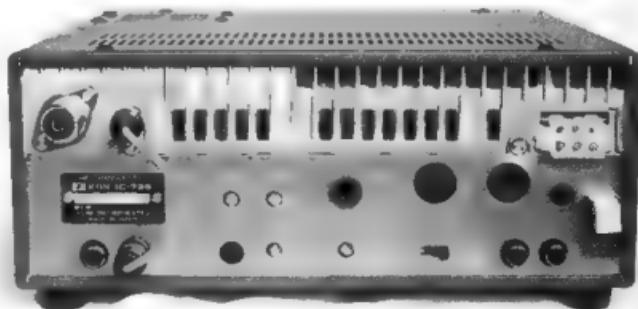
for the optional inclusion of an electronic keyer unit and full break-in keying is built-in. There are no relays, all switching being solid state. This makes full QSK possible and also gives smooth and silent VOX operation on SSB.

A sharp CW filter is a standard fitting with switching to use either the s or the normal SSB filter for CW operation. Squelch is useable with all modes although its main purpose is with the FM mode. I feel that one of the few mistakes Icom made was to gang this control with the audio gain. The more logical RF gain is hidden within the lesser used set and forget controls behind the flip down plastic panel. These two should be reversed.

Some of the other handy additional features include receiver tone control, adjustment for dial light brilliance, power output switch to give either the normal 100 watts or 50 watts (a handy feature for novice operators), CW side tone volume control, 25kHz marker, scan timer switch and scan speed selector. All of these controls are not available from the front panel, some like the tone and sidetone adjustments are accessible through holes in the cabinet while others require the top or bottom of the cabinet to be removed.

However I am leaving the best (I think) to last. For the first time since the IC-701, the 735 stays on the same frequency when modes are changed. This is something that I have commented on in each of my Icom reviews over the years. Now if only the R-71 had this same feature.

Well, with all of that what should the 735 have? On y one thing that I can see, a handle! Here it is, a perfect portable transceiver that just invites you to pick it up and travel, but it takes two hands. The 751 and 745 both have a handle, the 735 should have one as well.



#### TECHNICAL DETAILS

Unfortunately the only technical information supplied with the review transceiver was a rather hard-to-read photo copy of a block diagram. With the aid of a new pair of bi-focals, the following was discerned. Antenna input to the receiver is via the attenuator and a high pass filter to the eight band pass filters. The high pass filter is by-passed for broadcast and long wave reception. The preamp is now diode

switched. The 730 preamp was relay switched and was inclined to trouble with intermittent contacts. Push/pull 2SK125s are used in both the preamp and the first mixer. The conversion set up is 70.45 MHz first IF to 9.01 MHz where the main filters are located. The notch filter is also at this frequency. Third IF is at 455 kHz with an additional limiter and detector for FM reception. Band pass tuning is at 9.01 MHz and uses a VCO to shift this IF frequency in relation to the 455kHz IF.

For transmit carrier generation is at 9.01 MHz. Two carrier oscillator crystals are employed, one for AM, FM and LSB, the other for LSB, CW receive and CW transmit. The actual frequencies being slightly shifted to ±100 Hz.

The PLL unit supplies all of the conversion heterodyne frequencies and is controlled by the CPU. This is powered by a lithium battery which has an estimated life of five years. Therefore all memories and VFO frequencies are retained when all DC has been removed from the transceiver.

Transmitter output is via a x-ray switchable low pass filter.

### THE IC-745 ON TEST

The following test equipment was used to produce our figures on the IC-745. Yaesu YR450 terminating RF watt meter, Drake W-4 through-line watt meter, Kenwood SM-220 monitor scope, AWA F4242A noise and distortion meter, Daven terminating audio output meter and a Marconi TF995A/S RF signal generator.

#### Frequency Stability

In common with most modern equipment, the C-745 is very stable. With synthesised VFOs drift that would have passed as acceptable a few years ago is now non-existent. Tested several times over three days, drift did not exceed 50Hz on the several frequencies checked.

#### Power Output

Power output was measured with the transceiver running from the matching PS-55 power supply. Under full CW output it was able to supply 13.8 watts to the 745. Power was measured under CW conditions. The PEP output was measured on the monitor scope and two tone audio was fed into the microphone socket with the resultant RF out measured on the watt meter and then multiplied by two to give PEP. The results were as follows.

**BAND** CW OUTPUT PEP OUTPUT Two tone output by 2 to give PEP From Scope

| BAND    | CW OUTPUT | PEP OUTPUT | Two tone output by 2 to give PEP |
|---------|-----------|------------|----------------------------------|
| 1.8MHz  | 124 W     | 130 W      | 120 W                            |
| 3 MHz   | 124 W     | 130 W      | 120 W                            |
| 7.0MHz  | 124 W     | 130 W      | 120 W                            |
| 10.0MHz | 124 W     | 130 W      | 120 W                            |
| 14.0MHz | 123 W     | 130 W      | 118 W                            |
| 18.0MHz | 123 W     | 130 W      | 118 W                            |
| 21.0MHz | 123 W     | 130 W      | 120 W                            |
| 24.0MHz | 124 W     | 130 W      | 122 W                            |
| 28.0MHz | 124 W     | 130 W      | 122 W                            |

The response from band to band is excellent. The transceiver ran reasonably cool during these tests. Like its predecessor the IC-730, the cooling fan comes on as soon as the transmitter is keyed and stays on for a short time after transmission has stopped.

The scope pattern was clean even with the audio we up. The power control behind the transparent panel allowed the power to be varied from full output down to about 5 watts. Handy for QRP operation. Subjective tests of the transmitted audio quality was carried out in the three modes. SSB was rated as good.

The review transceiver was supplied with an HM-12 hand microphone. An SM6 desk microphone was also tested. Opinion was that the SM6 had a more balanced response but both microphones sounded rather restricted. Transmitted quality in the AM and FM modes was rated as fair. Both had a slightly edgy quality and were not comparable to other equipment tested recently. At this time, there is no way of knowing if this is pecu lar to this particular transceiver.

#### Receiver Tests

The extension speaker output was connected to the terminal and a power meter and the noise and distortion meter. The power meter was set to 8 ohms. Residual noise with the audio gain set at zero was 58.5dBm. This is quite a reasonable figure and somewhat better than previous Icom transceivers tested. Audio power output and distortion were next checked.

#### Output power

|           | Distortion |
|-----------|------------|
| 5 watt    | 1%         |
| 7.5 watts | 1.1%       |
| 21 watts  | 2.5%       |
| 48 watts  | 40%        |

These figures show the combined distortion from the product detector and the audio amplifier is very low up to the overload point. As a point of interest,

I did this same test on an old FT-101 and found that the distortion was around 10 percent at less than 1 watt output. There is no doubt that modern transceivers sound very much better than their older relatives.

The received audio response in LSB mode was checked by tuning across the output of a crystal calibrator. The results were as follows.

| 100  | 200  | 300  | 400  | 1k   | 1.5k |
|------|------|------|------|------|------|
| -10  | -3   | -1   | 0    | 0    | -1   |
| 2.0k | 2.2k | 2.5k | 2.7k | 3.0k |      |
| -2.5 | 3.5  | -5   | 7    | 26dB |      |

This is very smooth but could be shifted a bit further away from the filter to give a slightly better high frequency.

The AM receive frequency response was checked with the following results.

| 40   | 50  | 75  | 100 | 200  | 400 |
|------|-----|-----|-----|------|-----|
| -9   | -6  | -4  | -3  | -1   | 0   |
| 1kHz | 1.5 | 2.0 | 2.5 | 3.0  | 3.5 |
| 0    | -1  | -1  | -2  | -2.5 | -5  |
| 4.0  |     |     |     |      |     |
| -8dB |     |     |     |      |     |

These are excellent figures for any AM receiver. Feeding a good quality external speaker the results are very pleasing. Add to this the excellent tuning characteristics and relative lack of clicking as the synthesiser changes frequency produces very good AM results. The SSB filter can be selected for AM reception if required by depressing the narrow button.

The CW filter is included as standard in the 735. The response was checked with the following results.

|     | 300 | 400 | 600 | 800 | 1k    |
|-----|-----|-----|-----|-----|-------|
| -20 | -15 | -10 | 0   | -10 | -20dB |

The band pass tuning was next measured. With the control central, the SSB response is normal. In the USB mode turning the control to the left reduced the high frequency response while turning right reduces the low frequency response. At 1.5k the selectivity could be adjusted to give -25dB. The same -25dB response could be obtained at 800Hz. It should be noted that you can have either one or the other, not both together. The action of this control is quite useful but not as effective as the Kenwood system that allows independent adjustment of both high and low frequencies.

Receiver sensitivity and '5' meter calibration were then checked. Signal to noise ratio was tested at 14.2 MHz. At 1uV input the preamp switched out the SWR was 18.5dB. With the preamp in, it was 23dB. At 28.5 MHz 1uV SWR was 11dB preamp out and 16dB preamp in.

'5' meter calibration was measured with the preamp in, and even then it took a signal of 2uV to reach 51. From there up the following results were obtained.

| 5 Meter Reading | Signal input dB increase |
|-----------------|--------------------------|
| 1               | 2uV                      |
| 2               | 2.5uV                    |
| 3               | 3.1uV                    |
| 4               | 4uV                      |
| 5               | 5uV                      |
| 6               | 6uV                      |
| 7               | 10uV                     |
| 8               | 10.5uV                   |
| 9               | 30uV                     |
| 9+10dB          | 30uV                     |
| 9+20dB          | 300uV                    |
| 9+20dB          | 10dB                     |
| 9+30dB          | 600uV                    |
|                 | 10dB                     |

The meter actually reads to 59+60dB but signal input readings were not measured up to this level, but for interest a 10kW broadcast four kilometres away reaches this (preamp out).

With the preamp out, the 5 meter was very sluggish but the receiver performance was quite acceptable. The preamp has a measured gain of 10dB at 14.2 MHz and the 20dB attenuator was checked at exactly that figure.

The AGC performance was next to be measured. With the preamp in, an increase of signal input from 1uV to 10uV resulted in a 2dB audio output increase

and then from there up to the limit of the RF generator, no further increase in audio resulted. With the preamp out, the 1uV to 10uV increase was 14dB, there was no further increase in output level from there. AGC decay time from an 59 signal was 5 seconds with AGC slow and 1 second with AGC fast.

Receiver front end performance was checked for adjacent strong signal handling. A signal was injected into the antenna socket 3kHz off frequency and noise increase measured. With 10mV input, equal to about 59+10dB there was 0dB, with 1mV 1.5dB and with 10mV 15dB. An excellent result!

The antenna input was terminated with a 50 ohm resistive load and the receiver tested over its entire range. All spurious signals were noted. There were twenty eight but of these only three were of any consequence. These were 23.039 MHz which reached 54, 14.471 MHz, S1 and 9.011 MHz, S1. All others were below an equivalent level of 25uV.

To conclude our tests, the FM receive performance was checked. The tests were conducted on 28.5 MHz. At 1uV input modulated at 1kHz to give 4kHz deviation, the signal to noise ratio was 6dB. It took a signal input of 4uV to open the squelch. As the specified squelch sensitivity is 3uV something seems to have gone wrong here.

### INSTRUCTION MANUAL

Our review transceiver was supplied with a draft copy only. It did appear complete but on a quick look it will tell what appears in the manual supplied with equipment sold locally.

### CONCLUSIONS

It is interesting to look at the 735 in relation to the older 745. In many ways, it out performs the 745. Broadcast band and long wave reception is slightly better, both from a quality and sensitivity point of view. Memory scan now works in a logical way (see comments on memory scan in the 745 review). There are very few points of criticism with the 735. It is a very versatile little transceiver if only it had a hand-held. Perhaps a few comments about the matching PS-55 power supply might be of interest. This worked well throughout the tests with the exception of a slight amount of mechanical hum. But perhaps Icom might consider a few improvements. Firstly, there is no provision to supply DC to anything other than the 735 transceiver. Once you have invested in a good regulated supply it is hard to use it to supply a two metre FM transceiver or some other piece of station equipment. I use a PS-15 which I have modified to give auxiliary DC output and front panel AC switching so that it can be used with all units in the shack. Last point, what about a speaker in the front panel of the PS-55. There is room for one.

Thanks to Icom Australia who kindly supplied this review transceiver.

### EVALUATION AND ON AIR TEST OF THE ICOM IC-735 HF TRANSCEIVER

— Serial No 0021

#### APPEARANCE

##### Packaging

— Carton with foam inserts, but not up to other Icom equipment

##### Size

— About as small as they come

##### Weight

— Slightly less than its predecessor

##### External finish

— Clean appearance and well finished

##### Construction quality

— Good quality boards and wiring. Reasonable accessibility.

##### FRONT PANEL

##### Location of controls

— Top marks. Some are hard to get at but excellent layout for front panel size.

##### Size of knobs

— Small front panel means small controls, but mostly satisfactory.

##### Callelling

— Very clear

##### Status indicators

— New LCD display very comprehensive, but no indicators for many functions.

## VFO ACTION

Tun ng Knob

\*\*\* Smooth action Adjustable drag

Tun ng Rate

\*\* Better than previous Icoms, but still a bit slow

Digital readout

\*\*\* New LCD display very good 100-Hz resolution

spot on frequency

VFO stability

\*\*\* Less than 100-Hz total drift

## RECEIVER OPERATION

Memory

\*\*\* 12 tunable memories. Very useable memory scan

also select ed mode memory scan

Band pass tune

\*\* Quite useful

Notch Filter

\*\*\* Works well for all modes.

Spurious responses

\*\* Quite a few, but mostly very low level (see test section).

'S' meter

\*\* OK with preamp in, sluggish with it out

ACC performance

\*\*\* Good action No pumping detected

Signal handl ng

\*\*\* No cross mod heard except when noise blanker selected with maximum blanking.

R/T

\*\* +/ 900Hz No XIT No frequency indication Leaves you in the dark.

Sensitivity

\*\*\*\* Excellent. See test section.

Preamplifier

\*\*\*\* Independently controlled Gives good choice.

RF gain

\* Works well. Difficult to get at

NOISE BLANKER

Woodpecker

\*\*\* Excellent blanking, but introduces cross modulation

Ignition and general electrical noise

\*\* Works well, but level adjustment critical to avoid cross modulation

## QUALITY OF RECEIVED AUDIO

Internal speaker

\*\* Very small speaker but well baffled giving quite fair quality.

External speaker

NA Appears that no matching speaker available. Very good on my usual station speaker

AM received quality

\*\*\*\* Special mention, it's excellent.

Headphone output

\*\*\* Stereo phones compatible. Good level.

Cooling fan noise

\*\*\*\* Does not operate in receive mode except after long transmission.

## TRANSMIT OPERATION

CW and PEP output

\*\*\*\* Excellent See test section

Audio response

\*\* Good on SSB, fair on AM and FM

ALC action

\*\*\* Very good, no flat tapping

Compressor

\*\* Audio processor only but quite effective if not pushed too hard

Metering

\*\* ALC, relative output and SWR

Relay noise

\*\*\*\* None Solid state switching

VOX operation

\*\*\*\* Excellent and no clattering relays. Use it you will like it

CW operation

\*\*\* Full QSK CW filter good sidetone

Cooling

\*\* Runs quite cool. Fan operates continuously in transmit mode with audible sound

## MANUAL

Owners Handbook

NA Only rough copy available at time of review

Rating Code: Poor \* Satisfactory \*\*

Very Good \*\*\* Excellent \*\*\*\*

Ted Gabriel VK4YG

PO Box 245, Ravenshoe Qld 4872

## 75th Nostalgia

# "THE NIGHTINGALE SINGS"

## A TRIBUTE TO THE LATE BILL MOORE VK2HZ

I first met Bill Moore in a Japanese Prisoner of War camp in Batavia (Djakarta) in 1942, when thousands of Australians from the three services laid down their arms after fighting a bitter rearguard action to defend their country against the tide of war which had engulfed Malaya, Singapore and the Dutch East Indies.

Bill was a quiet, friendly man who had a cheery smile for everyone who met him.

What has this to do with nightingales you may ask? relax, I will explain.

Bill was an RAAF radar officer serving in Malaya and when Singapore fell he was evacuated to Java.

After the capture and while allied servicemen were being rounded up he quietly collected radio components from wrecked aircraft and other equipment and smuggled the parts into the camp in Batavia.

From these components, with typical amateur ingenuity, he constructed a receiver powered by torch batteries which could be easily dismantled for sh sh from one camp to another.

It was this receiver that brought the war news to Australian POWs working on the notorious Burma-Tha land Ra Iway of Death, it gave hope in the days of gloomy despair, and lifted the morale of those cut off from their home and loved ones.

Without doubt this man's skill and concern for his fellow man gave many the will to survive this terrible ordeal.

A Night gale Sang in Berkeley Square" was a wartime tune made popular by Glenn Miller and his orchestra and the phrase, the "Nightingale Sings" was chosen as a code name for the extremely dangerous task of receiving the news from the BBC in India or Radio Australia and passing it on to the troops.

Since the Japanese use the word "news" to mean news this word was strictly taboo as were "radio" or "wireless".

Accordingly the code word; "The Nightingale Sings" meant that there would be news before 'lights out' that evening.

The operator, Corporal Arch Caswell, RAAF, who was later awarded the British Empire Medal for his work, would retire under his mosquito net, produce the earphone from its hiding place, switch on the receiver and listen to the news.

While he was doing this there would be several unobtrusive "cockatoos" on watch to see that no guards approached the hut undetected.

Nothing was ever written down, the operator memorised what he heard and then sought out a certain officer who also memorised what he heard and then informed the Australian Senior Officer.

After the evening meal all officers in charge of working parties were called to the CO's quarters to receive orders for the next day and were then told the news.

The officers then went to their groups to prepare work lists for the next day and passed on the "Nightingale's Song" to their men.

Very strict discipline was necessary to protect the lives of those engaged in this dangerous operation, all men were to hear the news and then "forget it," anyone heard discussing it later would be immediately put on a charge and denied access for a long time.

No Australians were caught but an English officer found with a secret radio in one camp was beaten to death those responsible were later executed after a War Crimes Trial.

Moving from one camp to another meant that the receiver had to be dismantled and the parts distributed amongst several people and concealed in such a way as to evade searches by the Japanese.

Some very ingenious methods were used, parts were concealed in musical instruments, in bags of rice, in hollowed out timber of boxes, in shoes

or boots, while the torch batteries were concealed in bamboo carrying poles.

One particularly crafty move was made by concealing parts in the Japanese officer's telephone equipment which was not searched and which was maintained by Australian signals men since neither the officers' staff or the Japanese Military Police, the "Kempel Tal", understood much about this gear.

Considerable discretion had to be exercised when some Japanese, trying to improve their knowledge of English, would discuss items of news published in their propaganda newspaper with the prisoners.

After the midget submarine raid in Sydney Harbour several of us were accosted by a Japanese triumphantly waving his newspaper and saying, "Nippon submarine torpedo centre pylon of Sydney Harbour Bridge!"

After several minutes of flegged amazement and careful consideration one of our group produced an old postcard of the famous bridge and showed it to the guard said, "But as you can see there is no centre pylon under the Sydney Harbour Bridge!"

"Ah so," he replied, "Nippon Submarine captain No I shot!" (you could not win!)

Farewell Bill Moore VK2HZ, the man who made it possible, the Australian Servicemen who heard the "Nightingale's Song" — salute you.

## PHOTOGRAPHIC WINNER 1984-85

The winner of the \$100 worth of Agfa film and/or video tapes was Sam Yaron VK2BVS for his collection of photographs on page 21 April AD.

## NEW LITERATURE

**CMOS DAC APPLICATIONS GUIDE** Free—64 Pages, is a guide to explain the use of CMOS D/A converters. The applications guide thoroughly covers theory, operation, and applications in greater detail than manufacturers' data sheets. The guide discusses basic CMOS DAC circuit design and function, as well as many of their specification such as output leakage current, digital-to-analog switching glitches, power supply rejection, and more.

The guide outlines considerations for using the devices in the conventional current-steering mode, in unipolar and bipolar modes, and how the correct voltage reference and precision output amplifier should be selected. Single-supply operation in the voltage-switching mode is also discussed. Following a chapter discussing the logic interface, twenty-five applications are described, from the most basic multiplier/divider to microprocessor interfaces with a 12-bit buffered multiplying DAC, and a microcontroller-to-12-bit DAC interface.

For further information contact Parameters Pty Ltd, Sydney, 41 Herbert St., Artarmon 2064 Phone (02) 439 3288, Melbourne 53 Governor Rd., Mordialloc 3195 Phone (03) 580 7444

AM

# AR SHOWCASE

During the summer holiday period the squad, operated entirely by volunteers, is kept continuously busy by incidents which range from boating mishaps, car accidents, swimmers caught in trouble to rescuing people trapped on cliffs. The squads 25 members average a total of around 130 rescues each year. Their equipment includes a Bell 206 Helicopter, 2 boats, a four wheel drive vehicle as well as other pieces of ancillary equipment such as the jaws of life.

The squad must liaise with many other services including the Police, SES, Coast guards, Fire Brigade and Surf Lifesaving clubs.

This is particularly the case while they are on the move. Consequently they found themselves with the requirement for a programmable pocket scanning receiver with both a large frequency range and high number of memory channels. The Microcomm SX-155 fitted this area quite well, particularly because of its 160 memories and HF/VHF/UHF frequency coverage. It also offered rechargeable batteries, high sensitivity and heavy duty extruded aluminium construction.



## BROADBAND DIRECTIONAL VHF-UHF BEAMS

GFS Electronic Imports have on the market a range of high gain broadband VHF/UHF beam antennas designed to suit the requirements of a number of different applications where broadband operation and gain is required.

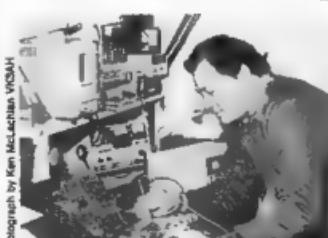
Known as the LOG-S5 and LOG-S5 respectively, the two antennas in the range cover the needs of most users. The LOG-S5 is a 13 element Log Periodic type beam with a gain of 11.5 dBi and a bandwidth of 65 to 520 MHz. Its power holding capability is 200 watts RMS over that bandwidth. Length of the LOG-S5's boom is 3.03 metres.

The smaller LOG-S5 is designed to cover the frequency range of 100 to 520 MHz and has just 9 elements. It is designed primarily for receive only applications although, with a primary balun fitted, it can be made to handle 200 watts RMS on transmit. Gain of the LOG-S5 is 9.5 dBi and its boom length is 1.02 metres.

One very common application for the LOG-S5 is its use in conjunction with programmable scanning receivers to provide these units with greater overall performance.

Price of the LOG-S5 is \$194 plus \$14 freight while the LOG-S5 is \$136 plus \$14 freight.

For further information on these antennas contact the distributor: GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic, 3132, Phone (03) 873 3777.



Andy VK3DPJ at work in the Am-Comm workshop, 69 Canterbury Road, East Camberwell.

## EXTRA SERVICE FACILITIES

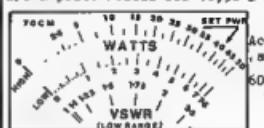
Am-Comm has expanded its service facilities. Andy Chan VK3DPJ has been appointed Service Manager. His experience spans over 20 years, dealing with all facets of radio communications equipment, including repeaters and marine radars. Andy has held positions extensively in the Pacific region.

The current service facilities at Am-Comm Electronics is fully equipped to cover all Icom, Kenwood and Yaesu customer needs.

## MICROWAVE DEVELOPMENTS

6 MERLEY ROAD, MOUNT BARKER, SA 51092. (P.O. BOX 274). 1PH. (08) 591 1092.

**POWER/VSWR METERS.** Our high accuracy meters are reviewed p.23 A.R. July '85 and still under \$120, including 20% S/T & post. Models for 70, 50 & 25cm.



**OUR LONG LOOP YAGI** is the standard compact, high gain antenna for 23cm. Soldered copper construction single, twin or quad form, supplied with splitter and mounting frame. Priced from \$64.80 inc. 20% S/T. 50cm & 1.7GHz versions available.

**WAVEGUIDE TUBE & FLANGES** WG14-WG20. Stocked. Bends, twists, flex to order.

**GUNN & FIXER DIODES** in stock at low prices. Some cheap Gunn available.

**OUR 3cm DARC TRANSCEIVER UNIT** \$925 (A.R. Nov '85), used with a Tandy PW Tuner 12-1550 and a simple power supply/modulator unit will get you on 3cm in a few hours.

Now developing Mode L/1296 gear. 73 de VK520 (Das Clift) AM85

## Travelaw's Electronics Tours



Following the highly successful Electronics Tours of Japan in October 1984 and May 1985, Paul Rodenbush VK2AHB announces the new **EUROPEAN ELECTRONICS TOUR!**

Departing 21 June 1986 for a four week tour of France, Italy, Switzerland, Germany, Holland and UK with the following highlights—

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- 4 All breakfasts and some dinners included.

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For more information write NOW to—

Paul Rodenbush VK2AHB,

Travelaw,  
7th Fl, 130 Phillip St, Sydney 2000.  
Phone (02) 233 6442, 231 2214.  
TAR B1154.

**STOP PRESS!! THERE ARE STILL SEATS AVAILABLE ON OUR OCTOBER TOUR TO JAPAN, DEPARTING 19 OCTOBER. WRITE NOW FOR INFORMATION.**

AM85

# ITU AND IARU

## THE INTERNATIONAL TELECOMMUNICATIONS UNION

The ITU is an international organization, and is a specialised agency of the United Nations. It is, however, far older than the United Nations.

The Convention establishing the ITU defines its purposes as

- to maintain and extend international cooperation for the improvement and rational use of telecommunication of all kinds,
- to promote the development of technical facilities and their most efficient operation with a view to improving the efficiency of telecommunications services, increasing their usefulness and making them, so far as possible, generally available to the public;
- to harmonise the actions of nations in the attainment of those common ends.

Much of the work of the ITU is undertaken through international conferences and meetings. The members of the Union meet at intervals of normally not less than five years at a Plenipotentiary Conference. This is the supreme authority of the ITU and lays down general policy. The Plenipotentiary Conference reviews the Union's work since the last conference and revises the Convention if this is considered necessary. It elects the members of the Union who are to serve on the Administrative Council,

the Secretary-General and the Deputy Secretary-General as well as the members of the International Frequency Registration Board (IFRB).

The detailed regulatory work is carried out by administrative conferences. These may be either world administrative conferences or regional administrative conferences. The conferences review the Administrative Regulations which are the Telegraph Regulations, the Telephone Regulations and the Radio Regulations. These are the regulations which govern the international operation of the three modes of communication.

The Administrative Council is composed of 36 members of the Union (presently including Australia). The Council normally meets for about a month once a year at the ITU Headquarters in Geneva and at these formal sessions the Administrative Council acts for the Plenipotentiary Conference and generally supervises the administrative functions and co-ordinates the activities of the four permanent organs of the ITU and examines and approves the annual budget.

The four permanent organs are the General Secretariat, the IFRB and the two Consultative Committees, the CCIR (the International Radio Consultative Committee) and the CCITT (the International Telegraph and Telephone Consultative Committee). The two CCs are the technical committees that issue recommenda-

tions for the guidance of the Union. The General Secretariat is responsible for the administrative arrangements at all conferences.

From September to December 1979 a World Administrative Radio Conference was held in Geneva. This conference made a general revision of the Radio Regulations including the International Frequency Table.

This was the first general revision in 20 years, though specialised 'Administrative Radio Conferences' had been held in the intervening period.

## INTERNATIONAL AMATEUR RADIO UNION

The amateur service has its own international organization to promote its worldwide growth and to represent its interests at the ITU if this should be necessary. This is the International Amateur Radio Union (IARU) which was founded in 1925. Its headquarters are located in the U.S.A. but it has separate representation in each ITU region (3). Its membership is made up of national societies rather than individuals, just as the members of the ITU are national administrations, not radio services or individuals.

In a similar way to that in which the ITU regulates and co-ordinates frequency allocations as a whole, the IARU regulates and co-ordinates amateur activities within individual amateur bands, albeit on a voluntary basis, so as to cater for the many interests within amateur radio.



## EDUCATION

People wishing to enrol in Morse code or theory instruction classes are advised to check with their division of the WIA (see WIA directory in this book for addresses).

Each WIA division should be able to also recommend theory books helpful to those studying either for a Novice licence or the AOC/P theory.

The Federal WIA Education Co-ordinator,

Brenda Edmonds VK3KT handles national matters relating to the education field. Her role includes education policy matters in connection with DOC examination syllabuses and overall examination problems.

Other services provided include liaison with DOC on matters raised by WIA divisions and members, preparation of Trial Examination papers (Novice and AOC/P), and distribution of

sample CW examination tapes provided by DOC.

Mrs Edmonds can be reached via the WIA Executive Office, PO Box 300, Caulfield Vic., 3162, direct via her callbook address, or on the Education Net each Thursday evening, 3.685MHz at 1130 UTC.

She would urgently like to hear from clubs and schools starting theory classes.



Courtesy Herald &amp; Weekly Times Ltd



Courtesy Victoria Police



1963



Maxwell Hulme VK3ZS,

They shall grow not old  
Age shall not weary them  
At the going down of the sun  
We will remember them



Courtesy Herald &amp; Weekly Times Pty Ltd



Courtesy Broadcast Station SAW



Courtesy RAAF



Courtesy Herald &amp; Weekly Times Pty Ltd

1979

These words were written by Robert Laurence Binyon, and would be known to most Australians from the Boer War to the present time. Born in England on the 10th August 1869, he was a poet, art critic and literary contributor to the "New York Times". He was the author of 20 books of poetry. In 1940 he held the position of Byron Professor of the University of Athens. He died on the 10th March 1943, at the age of 72 years.

The Second World War had come to an end in 1945 and the Federal Headquarters of the WIA, located in NSW from 1933 to 1938, had recommended operation in Victoria. Its post-war officers were R. Marriott VK3SL (President), Alec H. Clyne VK3VX (Federer Secretary), Tom D. Hogan VK3HK (Treasurer), Charles Quir VK3WQ and A. R. Williams VK3WE.

The Executive's immediate objectives was to reorganise the D divisions of the Institute in each State, procure the release of a few pre-war amateur frequency assignments and organise band-planning for future radio amateur operations in Australia.

The amateurs pre-war equipment had been sealed and lodged in local Post Office Stores (and other Government storage areas) for the duration. Under pressure from the Wireless Institute of Australia frequencies used by amateurs pre-war were slowly relinquished by the defence and maritime services and re-allocated by the Post Master General's Department for use by radio amateurs. The 'imprisoned' equipment was released for return to the owners and feverish activity ensued to 'get back on the air'.

The first post-war Federal Convention was held in Melbourne in 1946. At this Convention the NSW Divs or proposed that the Executive be authorised to organise a contest to perpetuate the names of those of the amateur ranks who had lost their lives in the service of their country, and that a trophy be provided bearing the names of these amateurs. Needless to say, the proposition gained the full support of all the divisions. The Federal Council approved of the name - Remembrance Day - for the contest as being most suitable.

It was to be two years before the project 'got off the ground' during which time the Federal Council agreed to the contest being a competition between States, the winning State to hold a perpetual trophy for a year, and to receive a special Remembrance Day Certificate. The basic rules were drawn up by the late Major W. (Bill)

Mitchell VK3JUM, with the assistance of the then Federal Contest Manager, E. H. Jenkins VK3QK. The trophy was designed and constructed by the late George Glover VK3AG, QM, (Honorary Life Member of WIA) with some assistance from George Manning VK3XJ. The certificate was designed by the late Mr Frank Manly, a British engraver with the Commonwealth note printing branch.

The weekend nearest to the 15th August (D-Day in the south west Pacific area of World War II) was selected as the most appropriate time to hold the Remembrance Day Contest and the first event was held in August 1948. It was an immediate success and has remained Australia's most popular contest. It has perpetuated the memory of the following radio amateurs -

VK2BQ F W S Easton RAAF VK2JV C D Roberts AMF VK2VJ V J E Jarvis RAAF VK2VK W Abbott RAAF VK2AJB G C Curle RAAF VK3DQ J D Morris AMF VK3GO T Stephens RAAF VK3HN J McCandlish AMF VK3IE J E Mann RAN VK3NG N E Gunter AMM VICKOR M D Orr RAAF VK3PR J F Colthrop RAAF VK3PV R P Veall AMF VK3SF S W Jones AMF VK3UW J A Burridge RAAF VK3VE J E Snadden RAAF VK4DR D A Laws AMF VK4FS F J Starr RAAF VK4PR R Allen RAAF VK5AF C A Ives RAAF VK5SL B James RAAF VK5BW J G Phillips AMF VK6GGR A H G Rippon RAN VK6JG J E Goddard RAAF VK6KKS K S Anderson AMF VK6PP P P Paterson RAAF.

Being such a popular Contest has not been without its traumas. Many debates over the years have taken place within the WIA Federal Council about the rules. Claims have been made that they favour one division in respect to another, or the larger with respect to the smaller ones. Many variations to the rules have been implemented and additional sections included over the years to encourage participation and interest. The various Contest Committees played an important part in this, and continue to do so.

The Contest's popularity has never really waned although percentage of operation has varied. A summary of the annual winners follows -

Australian Capital Territory (VK1) 1977  
1978: New South Wales (VK2) 1948, Victoria (VK3) 1967, Queensland (VK4) 1963, 1970, 1971, South Australia (VK5) 1954, 1955, 1964, 1965, 1972, 1974, 1975, 1976, 1979, 1980,

# Remembrance Day Contest

CS, WIA Federal Historian

As we that are left grow old  
May them not the years condemn  
The living and in the memory  
I remember them.



Courtesy Herald & Weekly Times Pty Ltd



1961

Courtesy Herald & Weekly Times Pty Ltd



1980



1958



1974

Courtesy Telecom Australia

Courtesy Bell Telephone VK4ACY



1982

Courtesy Herald & Weekly Times Pty Ltd



1975

Courtesy Ken McAdam VK4AH



1983

Courtesy Ken McAdam VK4AH



1972

1957



1981, 1982, 1983, 1984 Western Australia  
(VK6) 1952, 1953, 1956, 1957, 1958, 1961,  
1962, 1966: Tasmania (VK7) 1949, 1950, 1951,  
1959, 1960, 1968, 1969

In 1957 the Federal Executive inaugurated the idea of 'going to air' prior to the Contest with an official opening address given by some notable person, firstly to add prestige to the event and secondly as a means of keeping the name of amateur radio in the news. In the early years the address was preceded by the National Anthem and the introduction of the speaker by the Federal President or another official of the WIA. The information was given to the press. These arrangements do not appear to have been continued in more recent years. The following distinguished people have willingly given of their time to open the Remembrance Day Contests since 1957 —

1957 — His Excellency the Lieutenant Governor of Victoria, Lieutenant General The Honorable Sir Edmund Herring, KCMG, KBE, DSO, MC, ED.

1958 — The Right Honorable Robert G Menzies, Prime Minister of Australia

1959 — His Excellency, Colonel Sir Henry Abel Smith, KCBO, DSO, Governor of Queensland

1960 — The Right Honorable The Lord Rowallan, KT, KBE, MC, Governor of Tasmania.

1961 — His Excellency, Lieutenant General, the Honorable Sir Eric Woodward, KCMG, Governor of NSW

1962 — His Excellency, Sir Charles Gardner, KBE, CBE, KCMG, KCVO, Governor of Western Australia

1963 — His Excellency, Sir Rohan Delacombe, KBE, CB, DSO, Governor of Victoria.

1964 — Rupert H Arnold, QPM, Chief Commissioner of Police in Victoria

1965 — Major General Ivan N Dougherty, CBE, DSO & Bar, ED, B. Economics, Director of Civil Defence in New South Wales.

1966 — Brigadier A F Brown, CMG, OBE, Director of the Pacific Region of the Commonwealth War Graves Commission

1967 — The Honorable Allen Fairhall, MHR, Minister for Defence.

1968 — The Honorable Sir Paul Hasluck, MHR, Minister for External Affairs.

1969 — The Honorable Philip Lynch, MHR, Minister for the Army

1970 — Horace S Young, Controller Radio Branch, Central Administration, Post-Master General's Department.

1971 — Air Vice Marshall Sir Richard Williams, KBE, CB, DSO.

1972 — G Maxwell Hull VK3ZS, Federal President and Honorary Life Member of the Wireless Institute of Australia

1973 — Myles F E Wright, Chairman, Australian Broadcasting Control Board

1974 — Senator Reginald Bishop, Postmaster-General of the Commonwealth of Australia.

1975 — The Right Honorable E G Whitlam, Prime Minister

1976 — The Right Honorable Malcolm Fraser, Prime Minister.

1977 — Horace S Young, Assistant Secretary, Radio Frequency Management Branch, Department of Posts & Telegraphs

1978 — His Excellency, Air Marshall Sir Wallace Kyle, GCB, KCVO, CBE, DSO, DFC, Governor of Western Australia.

1979 — Richard E Butler, Deputy Secretary General of the International Telecommunications Union (ITU)

1980 — The Honorable Anthony A Staley, MHR, Minister for Posts & Telegraphs.

1981 — The Right Honorable Ian Sinclair, MHR, Minister for Communications.

1982 — David Jull, MHR, Member for Bowman, Chairman of the Federal Government Communications Committee

1983 — Bruce Bathols VK3UV, Federal President, Wireless Institute of Australia.

1984 — The Honorable Michael Duffy, MHR, Minister for Communications.

The opening address for the 1985 Remembrance Day Contest will be presented by Richard L Baldwin W1RU, President of the International Amateur Radio Union (IARU). Mr Baldwin will also be visiting Australia during the WIA's 75th Celebrations this year.

The 75th Anniversary Year of the WIA records the thirty-seventh Remembrance Day Contest. On this occasion the Institute looks forward to a high percentage of participation.

**WE WILL REMEMBER THEM**



# HOW'S DX

Ken McLachlan, VK3AH  
Box 39 Mooroolbark Vic 3138

As announced at the bottom of last month's notes, I will be continuing to write this segment of the magazine and look forward to the future and the assistance that has been received from so many.

Entering into the fifth year of gathering, writing and correlating information is not getting easier in lieu of the band conditions which, to the newcomer and old timer alike, are not very lively, but there is DX there and it is going to seem a lifetime before an amateur, who is newly licensed, or someone who has recently been bitten by the DX "bug", will notch up their first 100 countries.

It will seem an eternity before you will receive confirmations, but take heart, as the majority will come. Remember that many countries have only access to their QSL bureau for inward and outward cards and all packaged cards are sent by surface mail.

If you are a real DXer you will acquire lots of patience and suffer many frustrations before you gain your DXCC but don't give up as you will make many life long friendships along the way. Good luck!

## DESPERATION

Greg Wilson N4CC, is offering one year's subscription to QZB DX for the first person to supply him with information leading to a QSL confirmation from Hal VS99PJ, for 1971. Readers dig deep and think hard, as QZB DX is an excellent weekly publication. Greg would also appreciate to know if anyone was a recipient of a VS99PJ card. His QTH is Route 2, Box 553-A, Yulee, FL 32097 USA

## GOUGH ISLAND

A diary note for October, Art VK3UX, reports that Sam ZS2SI, has indicated that Gough Island 40 10 S and 9 45 W may be activated sometime in October and the call will be ZD8GI. QSLs to ZS2SI.

## MANY CALLS — MANY LOCATIONS

Many VEs have worked Jose Ahumada, however many may not recognise the name but surely LU2ZY from the South Sandwich Islands, will ring a bell!

Born in 1926, Jose lived all over Europe with his family in the 1930's. He obtained his law degree in Argentina then entered the Argentinian Diplomatic Corps in 1951. He has held a licence for forty years and been the IARU Liaison Officer for thirty years as well as serving as the General Secretary of the Radio Club of Argentina.

Jose has operated as LU2ZY (1955), LU3ZY (1977) and LU5ZI (1981 and 1983) from the South Shetland Islands, LU8DX and LU12ZE from Staten Island and the Antarctic respectively, LU5ZA, LU12ZA (1983) and AZ5ZA in 1984 from the South Orkney Islands. Other calls he has held include LU00Q/MM, LU2ZA, LU22C and LU2ZS. His first call was LU8BCW, with which he made DXCC number 252 in 1951. No mean effort!

He is now retired and lives at either his Buenos Aires or Springfield QTH with his XYL Patricia LU3LYL, sometimes heard LU3LYW/LW4. Patricia has beaten Jose to the DXCC Honour Roll with a score of 311, Jose is six behind her but is sure to make it up from the Buenos Aires QTH with equipment such as a TR7, TS930, Alpha Linear and a TH7DXZ at a height of fifty-five metres.

Jose has given many a new country and I am sure all DXers wish him a very healthy and happy retirement. Also a few more DXCC countries to bring him on the Honour Roll with Patricia.

The above was adapted from the Carolina DX Association Bulletin and QZB DX, for the benefit of those that may possess cards from this amateur duo.

## DAMAGED CARDS

All cards for NG8AO have been mailed to those who supplied envelopes and IRCs. All others are en route to the bureaus. Inadvertently some printer damaged cards got into the mails, these

can be replaced by either returning the card or providing log data to K6LAE with an envelope and IRCs. Please do not hassle Dick NG8GO about this matter

## THE ARRL

Don Search W3AZD, in charge of the ARRL DXCC Desk, has nominated the following ZC4 calls that are definitely valid for DXCC purposes as a Sovereign Area Base.

The calls that will count for a new country include ZC4AB, AK, AKR, AM, ASG, AU, BI, BSG, CB, CI, CN, CS, CT, CW, CZ, DA, DY, EPI, ES, ESB, ESG, FE, GB, GM, HC, HMS, HS, ID, IK, JO, JE, JH, JV, JK, LC, MR, MT, NL, PC, PM, RB, RM, RP, SC, SJ, SS, TEN, TI, TX, UHF, VHF, WD and WW.

You truly hasn't had time as yet to seek out the ZC4 cards, or seek out the current active stations.

## SATELLITE DXCC

The ARRL have announced that "Contacts made via AMSAT and OSCAR 10 will be now accepted for the Satellite DXCC Award. Credit is retrospective to the date OSCAR 10 first became available for contacts. The report on WIAW's ARRL DX Bulletin remarks that the certificate is a non-endorseable, one time only award and applicants must submit forms CD164 and CD253, which are obtainable from Newington by supplying a 100 x 100 mm self addressed envelope and adequate postage.

## BEEN THERE, BUT COULDN'T TRANSMIT

All DXers hearts went out to Erik SM0AGD, and crew over the St Brandon effort that was a non event, even though they had received provisional permission from the Mauritius Department of Telecommunications with the promise of a licence on their arrival!

On arrival in Mauritius, a 388 licence was issued but they were told that St Brandon and Agalega were "out of bounds" to visitors, hence no licence. Every effort was made through diplomatic channels to "officialdom" but no definite answer was given.

They met the skipper of an Australian boat, the AURA II, who was tripping to and from St Brandon with scuba divers and with the Immigration Officer's approval, they went along with the hope of permission being granted and that if Jacky 3B7CF came along, his call could be used. Jacky, the day prior to departure, was alerted of the fact that he too was not permitted to operate from the area.

Erik and Thor LA7XB, made the 77 hour trip and even went ashore and erected a vertical in case permission was granted. Permission was never granted and the people that pirated 3B7 during the period never went through the trauma and frustration that Erik and Thor endured.

It is a pity that Erik, one of the world's best DX operators and QSLers, who has given so much to the hobby from various parts of the globe, was "conned" into making a fruitless and expensive trip to give someone a new country. Thank you Erik and congratulations on your integrity not to transmit and hope you get accreditation at a later date, as has been done so often, in similar situations in the past.

It is hoped that your faith in the hobby has not been destroyed by "officialdom and red tape" but being aware of your tenacious and determined character I am sure you will be heard from another prime location in the near future.

KE5SKC is not the Manager of 3B7CD that was a pirate station.

## ENTERPRISING

It was interesting to see an article entitled "Recycling Amateur Radio QTHs" in the May edition of World Radio where Mary N6KLM, has set herself up in the business of becoming a broker for the buying and selling of amateur QTHs.

Mary, who is becoming an avid DXer and is well on the way to acquiring her Extra Class licence, is working on the theory that it is a waste to remove an antenna installation and then go through the trauma of getting new permits etc. So amateurs sell to amateurs and buy from amateurs. It is a brilliant idea but not a first though!

Many years ago, Keith VK3ANJ and his XYL Pam, now VK6KNA, had difficulties selling their QTH. No better place than Hamlets in this news magazine, he thought. A evening city paper columnist, with a prime position in the paper that money couldn't buy, picked it up and reported it. The phone ran hot and the property was quickly sold with no agent's fees!

## POLICE/FIRE GAMES

The San Jose (California) State University Amateur Radio C ub will be on the air this month under the call W5YL as a special event station for the 1985 World Police/Fire Games. These games have attracted some 10,000 athletic participants from around the world.

Main operation of the station will be from 1900 UTC on the 4th August to 0700 UTC the next day. This pattern will continue until the 7th, then limited operation until the close of the event on the 11th. Frequencies to watch are 7.240 and 14.270 MHz for SSB. CW is catered for on 7.125 and 14.400 MHz.

To gain a commemorative certificate, send your QSL and a large self-addressed envelope with two IRCs to SJSU ARC, c/o Student Programmes and Services, PO Box 2, San Jose State University, San Jose, California, CA 95192 USA.

## DEILIUMAY

Have you received your CE6AA card yet? Mickey CE3ESS, has a hunch that mail PO Box 700 is being "lost" and suggests either of these addresses. Radio Club de Chile, PO Box 13630, Santiago Chile or Mickey Gelderstein PO Box 9634, Santiago, Chile. This column recommends that it be sent Registered Mail. The expense is high, but San Feliu will not be heard again for a long time!

## TEN METRES NOT DEAD

Ian ZD8LW, made 436 contacts in five hours of operating. Not bad operating and just under 10 percent were on 10 metres. He hopes to return later this year and stay for one week. It pays to listen and scan the bands.

## RUGGED UP — NOT REALLY

The latest edition of Weather News, the house journal of the Bureau of Meteorology has a photo of the Macquarie Island Bureau's staff. Included are Denise VK9YQ and Graham VK9GCG, looking very fit in casual dress. The rubber boots really don't suit Denise but I am sure they would keep the feet dry. It is hoped she can appear as soon as duties permit.

## MONACO

Valid licences are only issued to residents of Monaco. Due to the operations of some operators of idle property to be licensed, the Monaco Amateur Radio Society will be making representations to the ARRL. This of course refers to the cards being sent out by EASAGY for an operation by EA5FDO, who was signing 3A2TQ. The endorsement of 303/3A means nothing to the authorities and the latest issues are in the 3A2TQ series.

## ENTHUSIASTS OF 160 METRES

For the diary Manfred DK9CG/T/K, will return to activate Corsica next month with the accent being on 160 metres. Write and set up a sched now!

## PITCAIRN ISLAND

Jim G3OKV/VR6JR will be active on the bands as time permits. Jim is on the island, in a voluntary capacity, to assist in repairing the wharf QSLs to his home call will be attended to when he returns.





All times are Universal Co-ordinated Time and indicated as UTC.

## AMATEUR BANDS BEACONS

| Freq      | Call Sign | Location       |
|-----------|-----------|----------------|
| 50.005    | H44HHR    | Honiara        |
| 50.008    | JA2IGY    | Mie            |
| 50.075    | VS658     | Hong Kong      |
| 50.109    | ID814MA   | India          |
| 51.020    | ZL1UHF    | Mount C. m.e   |
| 52.033    | P29BPL    | Loloata Island |
| 52.100    | ZK2SLX    | Niue           |
| 52.200    | VK4VF     | Darwin         |
| 52.250    | ZL2VHM    | Manawatu       |
| 52.310    | ZL3MHF    | Hornby         |
| 52.325    | VK2RHM    | Newcastle      |
| 52.350    | VK6RTL    | Kalgoorlie     |
| 52.370    | VK7RST    | Hobart         |
| 52.420    | VK2RST    | Sydney         |
| 52.425    | VK3RCB    | Gunnedah       |
| 52.440    | VK7RTL    | Townsville     |
| 52.450    | VK5VF     | Mount Lofty    |
| 52.460    | VK6RPH    | Perth          |
| 52.465    | VK6RTW    | Albany         |
| 52.470    | VK7RNT    | Launceston     |
| 52.490    | ZL3SIX    | Blenheim       |
| 52.510    | ZL2MHF    | Upper Hutt     |
| 144.019   | VK6RBS    | Busselton      |
| 144.410   | VK1TRC    | Canberra       |
| 144.420   | VK3RSY    | Sydney         |
| 144.465   | VK6RTW    | Albany         |
| 144.565   | VK6RPH    | Port M. land   |
| 144.480   | VK8VF     | Darwin         |
| 144.800   | VK3VP     | Mount Lofty    |
| 145.000   | VK6RPH    | Perth          |
| 147.400   | VK3RCW    | Sydney         |
| 432.457   | VK6RBS    | Busselton      |
| 432.160   | VK6RPH    | Neelands       |
| 432.420   | VK3RSY    | Sydney         |
| 432.423   | VK3RMB    | Ballarat       |
| 432.440   | VK4RBB    | Brisbane       |
| 1286.171  | VK6RBS    | Busselton      |
| 1286.460  | VK6RPH    | Neelands       |
| 10300.000 | VK6RVR    | Ryleystone     |

A note in the "West Australian VHF Group Bulletin" for me drew my attention to the wrong frequency for VK6RPH and this has been corrected in this issue to 52.460. It was also mentioned the 6 and 2 metre beacons VK6RPH are only at Neelands CAE temporarily, and expected to be back at Bickley in two months, so this could be achieved by September.

## SIX METRES

Nev VK2QF, in sending his corrected six metre standins, wrote a short note to say there had been no current six metre activity. However, the note bears a P5 which said the six metre band opened on 9/6 at 0629 when we worked VK3XQ at 5 x 2, at 0652 VK3YDE 5 x 9, VK3DLT weak and at 0641 VK3ZYH 5 x 9 with heavy QSB. The VK7RT and VK7RNT beacons had been heard at 51 prior to working the VK3s. Nev's comment "six metres never dies, it just fades away at times!"

From Japan comes a short letter from JA1VOK, which says that XX9UUT followed by JA1UT worked about 360 JAs with all areas on 28/4, 1/5, 2/5, and 5/5. The XX-pedition to XX9 (Macao) was the first for the six metre band. JA1VOK worked XX9UUT at 1026 on 28/4 at 5 x 9.

JAT1VOK on 28/4 also worked VK4JXZ at 0953 and VK8VV at 1155. VK8CB was worked at 0852 on 13/4. Also George DU1GF in Manila who has been active on six metres since Cycle 19, and is 73 years of age, 5 x 9 signals about 4 weeks apart on 23, 6/4 and 5/5.

David VK2BA sends his Six Metres Standings List, and mentions on a recent tour of the east coast of Queensland he met many six metre operators, including John VK4TL, Ross VK4RQ, Harold VK4ANR, Lloyd VK4FXX, Lyn VK4ALM, Ron VK4FT and Dave

# VHF UHF - an expanding world

Eric Jamieson, VK5LP  
1 Quirns Road Forrester SA 5233

VK4TUA. He spoke to a number of others after fiddling them out on two metres and then going to 5m!

During the last few days of April David heard the following on his mobile rig: JA2ODN, A4MBM, plenty of JA5s, H44IIR and P29BPL beacon, and worked P29PL and P29ZFX. Looks like he had a rather busy trip.

David included a couple of pages from the April 1985 Solar Geophysical Summary from the Ionospheric Prediction Service, which in general comments on Solar Activity states: "Solar activity was low until 21 April when a region began to grow rapidly producing an M class flare on 22 April and an X class flare on 24 April. The region appeared to be capable of producing further events for much of the remainder of the month but did not do so."

"An interesting feature during the month was a region of reversed polarity to that normally observed for similar regions during the solar cycle. The polarity of sunspot regions reverse from one solar cycle to the next and so the region observed this month can be regarded as one of the first regions of the next solar cycle." David comments: "Anyway, it is nice to know that the sun is at least thinking about the new cycle!"

Under the heading of "Geomagnetic Disturbances" the notes said on 23 to 25 April the magnetic field was as unsorted to active levels, and to 26 on April the magnetic field at active to storm levels particularly on 28 April when major storm levels were reached. There was also an intense magnetic disturbance on 20/21 April, the A index for 21 April was 77 which makes this day one of the most disturbed days since 16 November last year.

September and October of course are the equinoctial periods when there is a greater possibility of extended DX including trans-equatorial. It is noted in QST's "World above 50 MHz" that Europeans have been worked from the US east coast every summer for the past four or five years, and Japan was worked from the west coast in June 1977 which was well below the peak of Cycle 21, so it will be the vigilant operators who grab the occasional DX which could appear and usually for very short periods. Suggest you keep the antenna looking out across the Pacific for the next few months at least.

## 50 - 54 MHZ DX STANDINGS

DXCC Countries based on information received up to 15th June 1985. Crossband totals are those not duplicated by 5 metre two-way contacts. Credit has not been given for contacts made with stations when 50 MHz operation was not authorised.

- Column 1: 5 metres confirmed
- 2: 6 metre two-way confirmed
- 3: Crossband 16 to 101 confirmed
- 4: Crossband 16 to 101 worked
- 5: Countries heard on 50 MHz
- 6: Countries heard on 52 MHz

| CALL SIGN | 1  | 2  | 3 | 4  | 5  | 6 |
|-----------|----|----|---|----|----|---|
| VK2RA     | 28 | 28 |   |    |    |   |
| VK2DDG    | 25 | 26 | 2 | 12 | 3  |   |
| VK3OT     | 25 | 25 |   |    | 10 |   |
| VK4ZB     | 23 | 24 |   |    |    | 4 |
| VK2QF     | 23 | 23 |   |    |    |   |
| VK2VC     | 22 | 22 |   |    |    |   |
| VK3YDE    | 20 |    |   |    | 1  | 1 |
| VK5SL     | 18 | 18 |   |    | 6  | 3 |
| VK3AMR    | 17 | 17 |   |    |    |   |
| VK4TL     | 17 | 17 |   |    |    |   |
| VK3NM     | 16 | 17 |   |    |    |   |
| VK7IG     | 16 | 17 |   |    |    |   |
| VK4ALM    | 15 | 16 |   |    |    |   |
| VK4ZSH    | 15 | 16 |   |    |    |   |

|         |    |    |   |   |
|---------|----|----|---|---|
| VIC4UJI | 14 | 15 |   |   |
| VK4OK   | 10 | 10 | 1 | 1 |
| VK4RQ   | 9  | 9  | 3 | 2 |

The minimum number of countries confirmed for an operator to commence being listed is five, including VK.

The next list is due to appear in February 1986 and entries will be on to my desk no later than 15th December 1985. Claimants are reminded full details of all contacts are required, they being the date of the contact, I me in UTC, call sign of station worked, country, mode, report sent and received, QSL sent and whether received. Split frequency contacts should be indicated, and please add 'YOLR s gn' and signature, plus the date of your claim.

Most of the submissions sent to me so far have been very neat and precise and are a great help in determining eligibility. Computer printouts and updates are quite acceptable!

The accuracy and credibility is as correct as I can determine. I have been told some contacts by certain operators were concluded on 28 MHz after 50 or 52 MHz faded out, but in the absence of any proof of these other than what I hear there is really nothing I can do. Obviously I cannot hear everything that goes on the VHF bands! DX standins are obviously at the mercy of the honesty of the claimants and I believe in general they are honest claims.

There are quite a few operators around Australia who have worked a considerable number of countries and who are not included on this list and it would be great to have them included — what about it chaps?

## EME ACTIVITY

Chris VK5MC has advised me that during November the ARRL EME Contests are to be held on 2nd and 3rd and 23rd and 24th. This is a very interesting period as there will be many EME stations operating on 144 MHz and some of these stations are capable of being heard by ordinary operators with reasonably established 144 MHz stations.

Whilst you may think this could not interest you, however, you may recall I mentioned in these notes last year that as a result of my listening I was able to identify no less than 14 EME stations from all over the globe. My antenna system does not of course, being a stacked pair of 13 elements with a masthead preamplifier, but there are many stations now working through OSCAR who should be capable of hearing some signals, particularly as they have the capability of elevating their antenna system whereas I cannot be tied to the rising and setting moon only.

Last year Chris VK5MC gave me a computer printout for my location and this included azimuth and elevation bearings plus G/H-A and declination for the moon. I have a similar printout for this November and Chris has indicated he is willing to provide a printout for any operator who is serious about giving it a try based upon having a system with a reasonable chance of hearing something.

If you would like to give it a go, please contact Chris Skeer VK5MC, Hatherleigh, SA 5280. Give me details of your latitude and longitude, enclose a large stamped self addressed envelope (repeat) I mean quite a large envelope plus three 3c stamps. Contact should be made with Chris as soon as possible as he does not have unlimited spare time, and some effort is needed to make these printouts so far and give him as much time as possible. Good luck with your efforts, but you are advised you may need to get out of bed early a couple of times to do it properly!

Further on the EME scene, Doug VK3LM sends

information of his 432 MHz EME activity during May. On 25/5 contacts were made at random with the following: 0312 K5JL, 449 received, 449 sent; 0355 ZL3AAD 449, 439 0410, A4BLC 559/559 on CW, also worked on SSB at 3 x 3 and 3 x 3, 0511 W7GBI 449/0; 0835 a CQ resulted in VJ1AW 549/559 on CW and 5 x 5 x 5 x 5 on SSB 0855 TSMSH 549/549; 0915 DK1UV 439/449, 0910 SM1BSA 0/0; 1000 SM6EUP 0/0, 1015 OK1KIR 449/449 and 1055 DF3RU 449/0. On 26/5 there was bad libration fading which made contacts difficult but the echoes were good. 1005 DK1UV 0/0 and 1027 G4NQC 0/0. These contacts have now given Doug five new stations, one new country for a total tally of 37 initial contacts in 16 countries. This is rather a good effort when one considers most of the contacts have been random. Good to hear from you again Doug.

The Illawarra Radio Group via "The Propagator" and Lyle VK2ALU did not make any contacts since the last report but upgrading of the equipment continues. It was pleasing to note that Lyle VK2ALU has been awarded a life Membership of the Illawarra Amateur Radio Society. He was a foundation member in 1962 when the club was reformed, and President during 1967/68 and other administrative posts since then.

Eventually the Club acquired the use of the CSIRO radio telescope dish at Dapto and Lyle became involved in its re-erection and the first EME contact by VK2AMW. The Club station was on 103/73 on 432 MHz. Vandalism at Dapto eventually caused the dish to be moved to a safer location and further work saw the dish being used on 1286 MHz, much of this work being performed by Lyle. His efforts had not gone unheeded though, as he was presented with the Ron Wilkinson Award by the Federal Executive of the WIA recently.

We congratulate you Lyle on receiving both your Life Membership and the Ron Wilkinson Award, and now that you have retired from the Electricity Commission of NSW hope that you will have even more time to pursue your hobbies and other pursuits, particularly, of course, EME.

## CONTACTS FROM SYDNEY

Cordon VK2ZAB has again written in a different vein this time, and believes it would be of interest to others to know what it has been possible to work from his location at Berowra Heights in Sydney on 144 MHz SSB during the period 16th April 1985 to 31st May 1985, listing contacts over 200km only.

| STATION | Number of contacts | Location        | Avg. distance from VK2ZAB |
|---------|--------------------|-----------------|---------------------------|
| VK2MQ   | 11                 | Moree           | 474 km                    |
| VK1BK   | 10                 | Canberra        | 262                       |
| VK1PFB  | 8                  | Cofti Harbour   | 412                       |
| VK1LC   | 3                  | Edge of Heights | 644                       |
| VK4AQ   | 8                  | Brisbane        | 700                       |
| VK2DG   | 1                  | Cofti Harbour   | 412                       |
| VK2ZRE  | 2                  | Byron Bay       | 596                       |
| VK3UM   | 4                  | Adaminaby       | 342                       |
| VK2ZRE  | 2                  | Melbourne       | 696                       |
| VK2EKT  | 7                  | Queensbeyan     | 250                       |
| VK3ZB   | 3                  | Melbourne       | 740                       |
| VK1BI   | 20                 | Canberra        | 262                       |
| VK4KJ   | 6                  | Brisbane        | 700                       |
| VK3TV   | 1                  | Strathbogie     | 620                       |
| VK3KEG  | 10                 | Melbourne       | 740                       |
| VK1KL   | 14                 | Canberra        | 262                       |
| VK3AUG  | 2                  | Melbourne       | 740                       |
| VK1KL   | 1                  | Canberra        | 262                       |
| VK1HU   | 3                  | Canberra        | 262                       |
| VK2ZK   | 16                 | Tamworth        | 280                       |
| VK4AUR  | 1                  | Brisbane        | 700                       |
| VK1BAT  | 1                  | Brisbane        | 700                       |
| VK2CT   | 1                  | Tamworth        | 280                       |
| VK2AKU  | 3                  | Namadgi         | 384                       |
| VK2DVZ  | 4                  | Tares           | 228                       |
| VK2YEZ  | 2                  | Griffith        | 476                       |
| VK2EJ   | 1                  | Wagga Wagga     | 384                       |
| VK3AZV  | 1                  | Melbourne       | 735                       |
| VK1ZEI  | 1                  | Canberra        | 262                       |
| VK1BUC  | 2                  | Canberra        | 262                       |
| VK1TGS  | 1                  | Canberra        | 262                       |
| VK1ZOS  | 1                  | Canberra        | 262                       |
| VK1BK   | 1                  | Canberra        | 262                       |
| VK1PV   | 1                  | Canberra        | 262                       |
| VK1KJ   | 2                  | Canberra        | 262                       |
| TOTAL   | 168                |                 |                           |

Contacts over 200 km on 70 cm SSB from VK2ZAB 16th April 1985 to 31st May 1985.

|        |    |           |        |
|--------|----|-----------|--------|
| VK1ZQ5 | 1  | Canberra  | 262 km |
| VK1CJ  | 1  | Canberra  | 262    |
| VK1GL  | 1  | Canberra  | 262    |
| VK1PV  | 2  | Canberra  | 262    |
| VK1BG  | 2  | Canberra  | 262    |
| VK3UM  | 3  | Melbourne | 696    |
| TOTAL  | 10 |           |        |

The VK2ZAB 144 MHz station runs a T5700A with 400 watt PEP linear and BF981 preamp to four 9 element horizontally polarised Yagis. On 70cm the station runs 10 watts from an IC490A and four 11 element Yagis.

The one thing that continues to upset Gordon is the action of some selfish or uninformed people



## EDUCATION NOTES

Work has now begun on preparing study guides to complement the revised syllabuses. Discussion with other past and present lecturers tends to confirm my view that we all set our own study limits according to our own ideas and that we are prepared to defend our opinions, sometimes quite fiercely.

The study guides are intended to provide common standards for lecturers, students and DOC. They should be especially helpful to students trying to work on their own. No guide will satisfy everyone, but the required depth of study will be set out and we hope to present statements of our expectations of student capability at the end of each section.

It is not possible to reconcile the different attitudes of various lecturers from a simple wish to get as many passes as possible to attempts to present a high level course with exam passes of less importance. A good study guide should help the student to cope with the lecturer.

As I have said previously lecturers fall into two groups — those who see the aim as to help the students pass the exam which gives them a 'licence to start learning' and those who see the theory and

truth as the important factor that the new licensee should be fully qualified before he begins to operate.

Most lecturers consciously try to achieve a balance, but it is difficult to completely suppress all bias. Perhaps the emphasis should change as the students progress from Novice to Full Licence.

No amount of discussion will completely eliminate some points of argument about particular questions or exam papers. The February Novice Exam seems to have been the "harshest" for some time, but, strangely, I had very little criticism of it. The results were the worst for which I have records — an overall pass percentage of 22.9 percent compared with figures between 40.5 percent and 54.4 percent from May 1981 to May 1984.

There have been apparently unreasonable variations before eg VK2 pass rates have ranged between 23.4 and 61.6 percent in samples of about 200 candidates. There are many possible reasons for this range apart from exam standard, but the February 1984 results were bad in all states except VK6.

I do feel that this exam was more difficult than previous novice theory exams, but surely not enough

insisting on conducting local QSOs on the calling frequencies on both bands. One such case occurred as Gordon was compiling the above list, when 144.1 was occupied for two solid hours by local QSOs without a break! Anyone wanting to use the calling frequency or even us monitor it for possible DX should not show whatsoever (fair go chaps, those concerned are hardly playing the game — SLP).

Gordon concludes his letter by saying "The only comment I would make is 'Who says there is little activity on 2 metres SSB?'" It certainly is to be found in the three eastern States by looking at the above lists, perhaps VK5 sees out through lack of interest or through our lack of activity the antennas are not turned this way very often!'

## IN GENERAL

It's fairly obvious it has been rather quiet during the cold months when many operators migrate to the fire inside the house. There are the occasional contacts across the border to VK3 by the dedicated.

The 21st anniversary of the South East Radio Group Convention went off rather well on the hold day weekend in June. VK3 won the coveted SERG Trophy this year. There was a good attendance despite the rather wintry conditions, but this did not seem to deter the participants in the various for hunts and hidden transmitter hunts. The usual Grand Tea completed the program on the Sunday.

From "Break-In" — "Those who think the standard metre is a length of metal enshrined somewhere in France must think again. Things have changed. From being defined in terms of the wavelength of orange light emitted by atoms of krypton the standard metre is now 'the length of the path travelled by light in a vacuum during a time of interval of 1/299792458 of a second' ZUHV." Now don't say you didn't know!

From the Antarctic at Mawson Base Mark VK0AQ has been having quite a deal of fun working through OSCAR. It takes a bit of effort however, as the day temperatures at the moment there are around — 26°C and the shack does not boast of too much heating. He has overhauled the VK0MA beacon on six metres and has had it running, but due to a shortage of power it will not be turned on constantly until more towards the warmer months, so we might hear him yet via Es.

Closing with the thought for the month: "Happiness is having friends who laugh at your stories when they're not so good and sympathise with you in your troubles even when they're not so bad." 73. The Voice in the Hills.

Brenda Edmonds, VK3KT

FEDERAL EDUCATION OFFICER  
56 Baden Powell Drive, Frankston, Vic 3199

to have such a marked effect.

Perhaps it is a more realistic paper of a more appropriate standard — many amateurs would be pleased to see the standard raised. But it must have been disappointing for those who have expected a pass rate of about 45 percent.

Statisticians please note that I am not attempting a statistical treatment of data, although I do intend to tackle something in that line soon. It should prove interesting.

To all those sitting for the August exam, please do not let the above discourse cause extra stress and worry. Remember — READ THE QUESTIONS — there is only one question difference between 68 and 70 percent.

Best of luck to all candidates. I'm sure your exam will be the easiest for years.

Comments on education matters are welcomed on the Education Net — Thursday, 1130 UTC 3.680 MHz or thereabouts. The lack of response to my CQs in the Novice band suggests that it is not worthwhile continuing the exercise.

73 Brenda VK3KT



# POUNDING BRASS

Marshall Emm, VK5FN  
GPO Box 389, Adelaide SA 5001

## LEARNING THE MORSE CODE (REPRISE)

Happy birthday Pounding Brass! It's hard to believe it, but this issue marks the commencement of the fourth year of the column's publication. Since an intention of the column from the very start has been to assist newcomers it is perhaps appropriate to review a subject he may deal with in the October 1983 issue — how to go about learning the Morse code.

What made me think of it now is at times, is that I received a letter from Gordon VK3GB, the Secretary of the Frankston and Mornington Peninsula Amateur Radio Club, back in February (not long before this was written). The letter said that the Club's Vice-President Graham VK3BL had read my article on CW instruction and the Club had adopted the method for their 1984 Novice Class. Of thirteen students who started the course three dropped out and ten sat the exam. Of those ten, nine were successful.

I hope they won't mind my publicly congratulating the new Novices and more particularly the instructor(s). I appreciate the compliment regarding the method, but a method is only a tool. A good carpenter can do good work with poor tools, a poor carpenter will do a poor job with the best of tools. All the credit for the success of those students belongs to their instructors, but I am delighted to think I may have played a small part by making a useful tool available to them. I doubt very much if it is original to the extent that I could lay claim to the method but I hope none here in the hope that it may be of benefit to potential brass pounders.

There are no magic recipes which will qualify you as a brass-pounder overnight. There are a number of tips and techniques which can make the job easier, but ultimately it's up to you.

When Mr Samuel Morse invented his code he had no idea anyone would ever be trying to copy dots and dashes from wireless transmission. In the first place, the code was devised for use on the land-line telegraph. In the second place, the mention was there for the signals to be transcribed onto a paper tape by a swinging pen, and then read by sight. Once operators learned the code they quickly found that they could recognise incoming characters by the clicks the pen made, and if it wasn't long before they read that it was actually easier. This pen gave way to the sounder.

The Morse code consists of patterns of short sounds and long sounds interspersed with spaces. Forget you ever heard of dots and dashes (at least 'till you've learned the code) and think of the short sounds as 'dots'

and the long sounds as "dahs." This gives you a useful way to represent the sound of the code any time you want — your own voice.

And here, already, is your first secret technique to help make the job easier — now that you know how to say a Morse code letter by using dots and dahs, forget you ever heard of dots and dahs! What you are really interested in is the sound of a letter.

For example, when you hear the sound "di-di-di" you should recognise the sound as representing the letter S. You should not count the dots. Take a more difficult one now "di-di-dah-dah." Say it over and over to yourself until you recognise the sound of an F without having to think of it in terms of a bunch of dots with a dash toward the end.

The sound of the dots is written without the T (except for the last one) for a very good reason — they are too hard to say quickly, and you can't manage that if you say "di-di-dah-dah." Try it — "di-di-dah-dah-di-di-dah-dah." You should now be ready to learn another secret technique, which is related to speed. You should learn the characters at a speed high enough that they sound like Morse characters, not individual dots and dashes. While you are learning the code, the character speed should be at least eight to ten words per minute (I'm not kidding!) with extra space in between the characters to slow the message speed down to something you can handle. This is called proportional spacing.

An exercise which I use when introducing someone to the code for the first time is to send the letter S at a speed of fifty words per minute. Just once, all by itself! Most people can recognise it without difficulty. This proves that there is no problem in hearing code characters and remembering them — the problem is in converting them into letters!

You should by now be ready to start learning the code — you've had all the tools you need since the day you were born, it is simply a matter of applying them (or applying yourself) to the task at hand.

Ideally you should listen to pure audio tones, such as those sent over the air or by a good practice oscillator driven by a competent operator. You certainly can learn the code characters by saying them to yourself all day long, without benefit of an instructor or tapes, but there are easier ways.

If you can get someone to loan you, have them send at a character speed of 8-10 WPM, spaced out so they send a character every three or four seconds. This gives you plenty of time to recognise the character, but

not enough time to mentally go through the whole alphabet until you locate it.

You need a programme for learning the characters. I often hear of people suggesting that the student should learn the "dit" letters (EISH) followed by the "dash" letters (TMO) followed by the combination letters. That method makes it very easy to start, but very hard to finish. I would suggest the following groups, which give you easy letters mixed with hard ones so you don't get discouraged by Qs, us, Xs and Zs coming all at once.

AIXET HBDU OPQR ZCGNV UYLKWF 12390 57845

Learn each group thoroughly on its own, then add it to the letters a ready learned, then make up words using the letters learned. Leave the numbers until you have mastered the letters, and you will find them a lot easier.

DO NOT GO ON TO A NEW GROUP UNTIL YOU HAVE MASTERED ALL OF THE LETTERS LEARNED SO FAR.

You can get a lot of practice in by writing the group you are studying on a piece of paper (writing dots and dashes, of course, not dots and dashes) and glancing at it while on the bus, at work, or whenever you have two minutes to yourself!

Once you have learned the first group you can start listening to practice tapes and the Slow Morse Broadcasts (VK2BWI, 0930 UTC, 3550 MHz and VK5AWI, 1230 UTC, same frequency). Just worry about picking out the letters you recognise and form a good habit now — if you miss a letter, forget it and concentrate on the next one. If you start to lose track of a letter, you will miss the next several letters and that's a circumstance which could cost you a pass on the exam.

Once you've learned the code it's just a matter of getting your speed up to the required level (or the level you desire, which should be higher than the required level). The only way to get your speed up is to practice, whether it's listening to tapes or live code on air, having a friend send to you, or calling out license plates from passing cars. Practice, Practice, Practice and you will find that your speed comes up very quickly. Then all you have to do is learn the commencing and finishing signals and you are ready for the exam. Learn a bit of procedure and you are ready for the air and that's where we want you to be.

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| TR-9130      | 2m All-Mode Trx (25W) .....                                | \$789  |
| TR-7950      | 2m FM Trx (45W) .....                                      | \$599  |
| TR-3500      | Hand-Held Trx (Ex Demo) .....                              | \$349  |
| AT-230       | Antenna Tuner .....  | \$259  |
| MA-4000      | Dual Band Mobile Antenna for TW-4000A .....                | \$59   |
| ST-1         | Base Stand/Quick Charger for TR-2400 .....                 | \$35   |
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#### NATIONAL CO-ORDINATOR

Graham Petchi VK5AGR

#### INFORMATION NETS

AMSAT AUSTRALIA

Contor VK5AGR

Amateur Checkin 0945 UTC Sunday

Bulletin Commences 1000 UTC

Winter 3.685 MHz Summer 7.064 MHz

#### AMSAT PACIFIC

Contor JA1ANG

1700 UTC Sunday

14.305 MHz

#### AMSAT SW PACIFIC

2200 UTC Saturday

21 260/28 874 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisions Broadcasts.

#### ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB and Randy VE1SAT through the AMSAT OSCAR 10 Telemetry.

#### AMSAT-AUSTRALIA NEWSLETTER

Graham VK5AGR, the National Co-ordinator of AMSAT Australia is now producing a monthly newsletter containing updated satellite news, orbital predictions, Keplerian data and operating hints and techniques. The objective of the newsletter is to keep the amateur populous informed on the latest information available and to raise funds for the funding of projects or the purchase of an item (items) of hardware for a future amateur satellite project, e.g. Phase-3C, Phase 4 or whatever. The cost of the newsletter is \$15 and cheques made payable to WIA (SA Division) should be forwarded to Graham VK5AGR, QTHR.

#### DJ4ZC VISIT TO AUSTRALIA

Dr Ken Menzies DJ4ZC, who is referred to as "the father of Phase 3", recently had the opportunity to stop-over in VK3 on his way to ZL to lecture at the ZL-NTZ Annual Conference. Albeit only for three days Karl and his XYL Kar n visited Adelaide, Melbourne and Sydney on the 27th, 28th and 29th May respectively, and presented excellent illustrated and informative lectures to a well attended and appreciative audience.

For those who were unable to attend any of the lectures the Adelaide presentation was videotaped by John VK5KG the Federal W A Videotape Co-ordinator and copies can be obtained from John in the normal manner.

To all those people who assisted with Karl's visit and especially to Graham VK5AGR who orchestrated the visit, the Satelite Community of Australia is extremely grateful.

#### OSCAR-10 ATTITUDE AND ECLIPSES

The following N block was recently received from the OSCAR-10 PSK Telemetry. It highlights the repositioning required for OSCAR-10 due to the eccentricities it has had to endure due to the final orbit it achieved as against the designed orbit. However, having read the bulletin you may well ask many questions. Therefore this month I am going to present a tutorial to explain the somewhat confusing terminology.

#### N BLOCK AS RECEIVED

Nd VE1SAT/VE6 1459/50 QST This is planned s/c position and transponder ON/OFF times for the coming eclipse (length = 4 wks) Starting 6/7 July till 1 August s/c will be moved from 190 Ion to approx 230 Ion with a 15 deg or more Lat movement. This remains constant until the first week in September when s/c is moved to 140/150 Ion. Commencing

# AMSAT AUSTRALIA

Colin Hurst VK5HI

8 Ardell Road, Salisbury Park, SA 5109

1 August both xponders OFF from MA 30 to 189. Mode L from MA 190 to 206. Mode B from MA 207 to 29. Log for above is: 30 to 70 - recharge, 70 to 130 - eclipse, 130 to 189 - recharge, 189 to Randy. POINTS TO NOTE FROM N BLOCK

Spacecraft Ion and Lat

The term MA (Mean Anomaly).

The revised schedule as from 1st August, which you may note is a RADICAL departure from past schedules, however the inconvenience to the communicator in the short term must be tempered with the life of the spacecraft in the long term.

#### SPACECRAFT ION AND LAT

OSCAR-10 is a spin stabilised satellite with the spin axis about the Z-Axis of the Spacecraft. The Z-Axis is parallel to the plane of the solar-cell arrays and passes through the geometric centre of the arrays. Put in a very simplistic manner the Z-Axis is also the "boom" of the antennas onboard OSCAR-10, and to get the strongest signals to and from OSCAR-10 the tip of the Z-Axis must be pointed directly at you

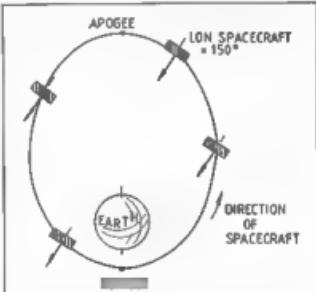


Figure 1 — Attitude of OSCAR-10 through Orbit.

Consequently because OSCAR-10 is spin stabilised at about 25 RPM, its attitude remains fixed in space. Its action is identical to the earth, which is also spin stabilised about the axis through the North and South Poles at one revolution per day. Therefore you must imagine OSCAR-10 at all times in a fixed attitude in space, (refer Figure 1). The complexity comes about when you have to define it to a point on the earth's surface, your QTH. The attitude of OSCAR-10 is expressed in BAHN (Celestial Navigation) Co-ordinates and is best illustrated in Figure 2. When Lon = 180 the Z-Axis of the s/c points at the Centre of Mass of the Earth along the Line of Apsides. Lat refers to inclination of the Z-Axis to the orbital plane of the spacecraft. Positive Lat is upwards from the orbital plane and Negative Lat is downwards from the orbital plane. Introduction of Lat into the attitude of the s/c produces a very complex scenario, as the orbital plane is inclined 26 degrees to the earth's equator. Hence it would be best left at this stage. The terms Lon and Lat referred to in the N-Block are BAHN co-ords and are not to be read as Geographic co-ordinates.

#### THAT WORD ANOMALY

In order to clear up the problem that many people are having and have had in the past (including myself) in respect to the variant ANOMALY, I have written a small basic programme to produce the data in Figure 3 to allow you to draw Figure 4 to scale using the values of True Anomaly in degrees and range in kilometres. The orbit is symmetrical about the semi-

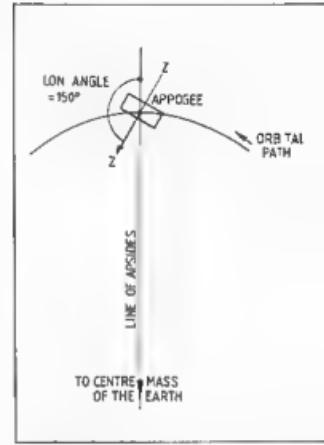


Figure 2 — Bahn Co-ordinates.

major axis should you wish to draw the whole orbit.

With the diagram in view let us now re-define the various terms.

MEAN ANOMALY: "An angle that increases uniformly with TIME used to indicate where a satellite is along its orbit."

The thing to remember is the operative UNIFORM TIME.

ECCENTRIC ANOMALY: "is an angle that is iteratively denoted on a computer to solve Kepler's equations for an ellipse"

On Figure 4 the Eccentric Anomaly is conspicuous by its absence. However, draw a circle to encompass the ellipse, its diameter is semi-major axis. Now draw an angle equal to Eccentric Anomaly from the ellipse centre (with perigee being reference 0 Deg) to cut the circle. From that intersection draw a line perpendicular to the semi-major axis. It should pass through the corresponding data point on the ellipse. You can now sigh, "thank heaven for computers!"

TRUE ANOMALY: "The polar angle that locates a satellite in the orbital plane drawn between the perigee, geocentre of earth and current satellite position and measured from the perigee in direction of satellite motion."

This should now be self-explanatory having used it to draw your ellipse.

Whereas in a circular orbit these three terms are one and the same, when it comes to an elliptical orbit they take on different values. Practically we continually encounter the term MEAN ANOMALY as this is the term that the ground controllers refer to all operations to. This is the term used on telemetry blocks and bulletins. However the MA value disseminated is not an angle referenced in DEGREES, but an angle referenced to a base of 256. This reference is used because of the on board computer and direct linking to ground stations. Consequently the following applies

| Point   | MA (Degrees) | MA (256) |
|---------|--------------|----------|
| Perigee | 0            | 0        |
|         | 90           | 64       |
| Apogee  | 180          | 128      |
|         | 270          | 192      |
| Perigee | 360          | 256      |

| Time from Perigee in Mins | Mean Anomaly Degrees | Mean Anomaly [256] | Eccentric Anomaly Degrees | True Anomaly Degrees | Range from Geocentre km | Spacecraft Altitude | MA [256] at which antennae Earth Pointing |
|---------------------------|----------------------|--------------------|---------------------------|----------------------|-------------------------|---------------------|---|
| T                         | MA <sup>a</sup>      | MA [256]           | E                         | θ                    | r                       | lon                 |   |
| 0.0                       | 0.0                  | 0.0                | 0.0                       | 0.0                  | 10516                   | 100                 | 18  |
| 30.0                      | 15.4                 | 11.0               | 35.1                      | 64.4                 | 13354                   | 110                 | 27  |
| 60.0                      | 30.9                 | 22.0               | 60.7                      | 98.8                 | 18480                   | 120                 | 34  |
| 90.0                      | 46.3                 | 32.9               | 80.0                      | 118.7                | 23399                   | 130                 | 42  |
| 120.0                     | 61.8                 | 43.9               | 95.8                      | 131.2                | 27677                   | 140                 | 53  |
| 150.0                     | 77.2                 | 54.9               | 109.5                     | 140.9                | 31294                   | 150                 | 68  |
| 180.0                     | 92.6                 | 65.9               | 127.7                     | 148.2                | 34101                   | 160                 | 85  |
| 210.0                     | 108.0                | 76.9               | 133.1                     | 155.4                | 36746                   | 170                 | 106                                       |
| 240.0                     | 123.5                | 87.9               | 143.7                     | 161.3                | 38872                   | 180                 | 128                                       |
| 270.0                     | 139.0                | 98.8               | 154.0                     | 166.8                | 40108                   | 190                 | 150                                       |
| 300.0                     | 154.4                | 109.8              | 163.9                     | 171.9                | 41077                   | 200                 | 171                                       |
| 330.0                     | 169.8                | 120.8              | 173.6                     | 176.8                | 41593                   | 210                 | 188                                       |
| 349.8                     | 180.0                | 128.0              | 180.0                     | 180.0                | 41689                   | 220                 | 203                                       |
|                           |                      |                    |                           |                      |                         | 230                 | 214                                       |
|                           |                      |                    |                           |                      |                         | 240                 | 227                                       |
|                           |                      |                    |                           |                      |                         | 250                 | 229                                       |
|                           |                      |                    |                           |                      |                         | 260                 | 234                                       |
|                           |                      |                    |                           |                      |                         | 270                 | 238                                       |

Figure 3

Figure 3: S/C LON vs MA [256]

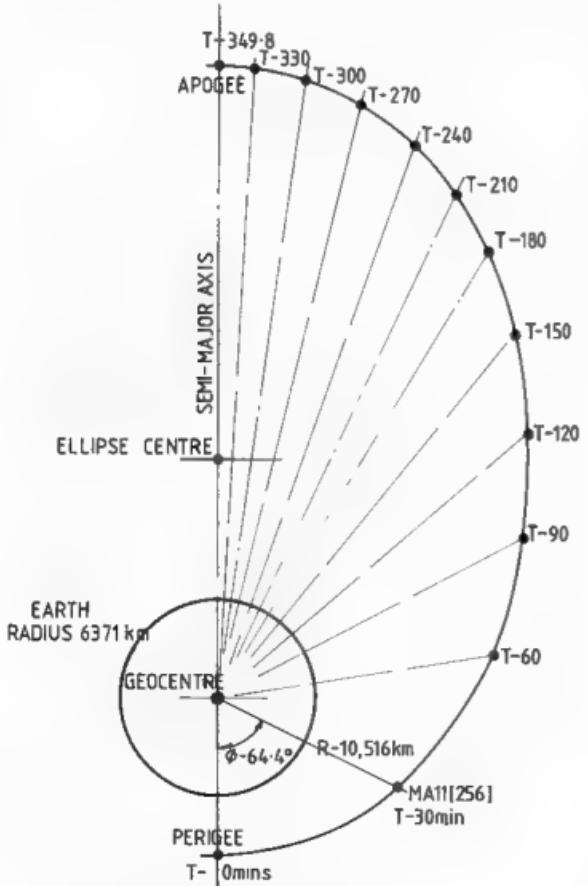


Figure 4 — OSCAR-10 Orbit to Scale.

Because the Mean Anomaly by definition refers to uniform increments of TIME, a useful tool to remember with OSCAR-10 is that 30 minutes equals to approximately 11 counts of MA [256], (actual value is 10.979).

#### REVISED SCHEDULE

Having digested all the above it is apparent that the ideal situation is to have the s/c at an altitude of 180 km. Thus at Apogee the antennae are pointing at the centre of the earth. However we have those eclipses to cope with and thus in the future considerable re-orientation in attitude will take place. Consequently it would be opportune to know when the antennae are earth pointing for the different values of Lon. This is made simpler when it is appreciated that the values of Lon equate to the True Anomaly, consequently the data in Figure 5 derived from another computer programme equates the earth pointing time of the orbit to the Mean Anomaly [256].

From Figure 5 we can see that from the 1st August the best operating times will be based around Mean Anomaly [256] = 214, and then from 1st September this will change to MA [256] = 60. It will certainly pay to listen to the AMSAT Astra nets, monitor the CW or RTTY bulletins on OSCAR-10 for the latest attitude orientation to optimise your operating schedules. Regular communication on OSCAR-10 will fully appreciate how signals are degraded when the antennae are off-pointed.

I trust that this tutorial has corrected all the anomalies in your thinking on elliptical orbits, if not drop me a letter with your specific problem.

de Colin VK5HI

#### WIA's 75th Anniversary Fox Hunting Championship 26th & 27th October



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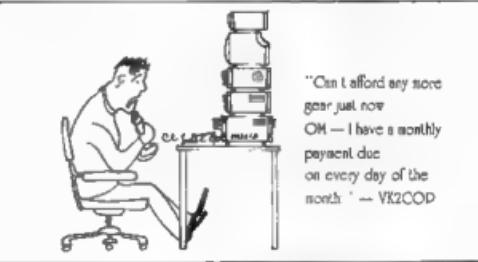
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**SATELLITE ACTIVITY FOR PERIOD 30 MARCH TO 26 APRIL 1985**

| Number  | Name         | Nation | Date of Launch | Period | Initial Data |       |      |              |
|---------|--------------|--------|----------------|--------|--------------|-------|------|--------------|
|         |              |        |                |        | Apog         | Perig | Incr | Remarks      |
| mins    | km           | km     | deg            |        |              |       |      |              |
| STS-126 | Comsat 1644  | USA    | Apr 3          | 93.2   | 415          | 348   | 70.4 |              |
| STS-128 | STS 55-D     | USA    | Apr 12         | 93.4   | 464          | 397   | 38.5 | See below    |
| STS-129 | Telesat 1    | Canada | Apr 13         | 1432.3 | 35770        | 35653 | 2.9  | From STS 110 |
| STS-130 | Syncron IV-3 | USA    | Apr 17         | 93.4   | 464          | 397   | 28.5 | From STS 110 |
| STS-131 | Comsat 1645  | USA    | Apr 16         | 98.5   | 380          | 213   | 62.8 |              |
| STS-132 | Galaxy 16-05 | USA    | Apr 18         | 93.3   | 448          | 426   | 65.1 |              |
| STS-133 | Comsat 1647  | USA    | Apr 19         | 98.5   | 326          | 169   | 67.1 |              |
| STS-134 | Comsat 1648  | USA    | Apr 25         |        |              |       |      |              |
| STS-135 | Progress 17  | USSR   | Apr 26         |        |              |       |      |              |



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# LISTENING AROUND

Joe Baker VK2BJX  
Box 2121 Mildura Vic 3500

I'm writing this in the pre-dawn hours of a late Autumn morning. I've already had a long sleep, and missed the Cocktail Net, and night owls like Leo VK5GJ, Bronie VK5KV and Gordon VK5HM, all of whom live in what Gordon refers to as the "Perfect State of South Australia" — which never has floods or industrial disputes — where the weather is always perfect and where everyone lives in a state of eternal bliss. Gordon will have gone QRT by this time.

As I listen while typing, the long skip is on and at one end of "80" there are some Asians, the loudest being a hard-working and fast talking JA who keeps saying his call sign like an LP record, or an endless tape over and over again. My puny 18 watts from my standby gear (as the SB102 is out of operation) fails to "break" him so I leave him to it, and confine myself to the typewriter.

So let's have an update on what's been happening recently here. Living in this part of NSW — a long way from anywhere of note — and being an ex-serviceman, I was told of NSW transport concessions which entitled me to reduced fares on most Sydney transport — even the Harbour ferries — and one free anrua (journey by rail within any two places in NSW — but there was only one snag — I'm about 1046km (650 miles) from Sydney and almost 322km (200 miles) from any NSW railway station).

As I live at Buronga, in NSW, just across the river Murray and about 3.2km (two miles) from Mildura. In Victoria, I was not too enthusiastic about what the NSW authorities had given me, and thus began a long battle lasting many years in which I badgered all kinds of people to have matters altered. Appeals to local politicians, and even the State Parliament of NSW were fruitless. Even the Victorian transport authorities to whom I also appealed gave me the same answer as their NSW mates — "Sorry, no can do, because there's no reciprocal agreements between States" so I was getting nowhere fast. Eventually I got the concessions I was after. Now, I can occasionally get away from Buronga (NSW) by taking an occasional trip down to Melbourne.

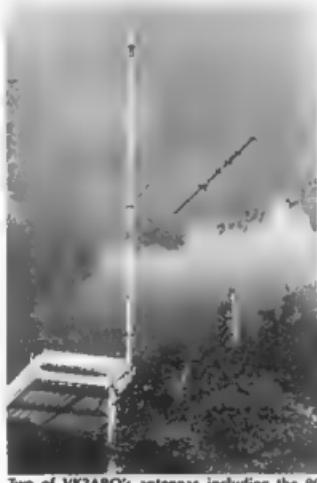
That's what I did early in April. Because finances were tight (they are with me) the plan was to spend two nights only in Melbourne — Monday night and Tuesday night, leaving Melbourne Wednesday night to arrive back to Mildura Thursday morning. The journey from Mildura is long and tiresome. I left by train at 9.25pm Sunday night, arriving at Spencer Street Station about 6.30 Monday morning — after getting little or no sleep. Of course I had brought my FT208R with me.

Soon after booking into a private motel near the station, I was on the air from my room on the third floor, making good use of the Geelong, Macedon and Mt Dandenong repeaters.

John VK3ABQ of Survey Hills and I have had many contacts on my earlier visits to Melbourne, but something always prevented me from seeing John. So, almost as soon as I hit Melbourne this time, I phoned John, who then picked me up took me to his home where I spent a pleasant several hours, sharing a beer with him, inspecting his well-appointed "shack", and photographing himself and his gear. It was an excellent day — thank you John for your hospitality which more than made up for the earlier times when we were unable to meet.

Another friend I have often wished to meet is Bob, who holds 21 call signs, VK3JCH ("Chicken, Chips and Hamburgers") and VK3BRW. John decided to drive me to Bob's work QTH. On arrival near the work QTH, John stopped his car in a short side-street off the main road, and decided to walk in one direction to find a street number, while I went in another direction. I got confused with the numbering system

and walked about a kilometre in one direction, while John had not far to go before he found the place. I was completely lost, and although I had my FT208R with me, couldn't call John because he didn't have two metres with him. John meanwhile, having found Bob's workplace, was told that Bob was unavailable (because he was out on a job). John then returned to his car, to wait for me.



Two of VK3ABQ's antennas including the 80 metre vertical.

I seemed to be walking for an eternity up hill and down dale before calling into a place, where I saw a welder at work, to ask directions. The welder took off his mask and said "you're going in the wrong direction mate — it's back up that way" indicating the direction from which I had, so laboriously and with much perspiration, come. So I hauled it back up a hill where I found John waiting for me. "If Bob wants to see me the next time I am in Melbourne" I said solemnly to John, "he had better come and fetch me" John's good driving got me back to my motel without incident, and after tea, I decided to go back to my room and see who I could catch on two metres. I found myself talking with VK3FEW (VK3 "Electric Wireless") on simplex. We had a good old chin-wag, and made arrangements to meet the next day at what I thought was to be 10.30am.

As it so happened, apparently I mistook the time, which should have been dinner time outside the Melbourne Stock Exchange. I arrived about 10.35am and waited till just after 11.15am, and not meeting "Electric Wireless" thought that, being five minutes late, I had missed him and decided to give it away. I went back to my room, had a rest, went for dinner and decided to go and spend a few hours in the Botanical Gardens, by the side of the Yarra.

After taking some good pictures of the "BICENTENNIAL ARCH" near the Arts Centre and the lovely vertical tower above the Centre (is that tower just an ornament, or is it somebody's private antenna) and armed with some cartons of milk, some potato cakes and fish, I decided to park myself and my FT208R on the lovely lawns. I put the FT208R in the



"That Tower" — maybe it is a radio antenna in disguise!! (and who owns the coil of wire in the top left corner?)

scanning mode. Eventually I settled on the Mt Dandenong repeater and spoke with a chap who said that he knew "Electric Wireless" personally and that if I would stay on the repeater, he would contact him as soon as "EW" finished work and let him know that I was listening. I maintained a listening watch and after a while heard "Electric Wireless" call me.

Now here's where I introduce Mr Murphy and his law which says that "if anything is going to happen, it will". Murphy had decided to flatten my battery — so flat indeed that when I tried to respond to "Electric Wireless", the red indicator light on my rig lit about as dim as a candle on Mars as it would appear seen through the Mt Palomar telescope. What maddened me was that I could hear the other chap telling "Electric Wireless" that perhaps I had gone and got lost again.

There was nothing I could do, but to return to the motel (where I still had my luggage, having formally booked out earlier the same day) and ask the booking clerk if I could retrieve my luggage from the baggage room to get my home brew charger — "borrow" an office power point and put some fresh juice into my FT208R. Permission was given, but Murphy was still with me. In the c a strophobia and confusion of that office I could not remember how to correctly connect up the charger so it wouldn't work.

Well, having a flat battery, I couldn't even try to disrupt the train communications by operating my mobile, as I did on a previous occasion. But who can tell what might happen when I again visit Melbourne, perhaps before the winter sets in?

Cheers to all and thanks for all the nice things you've said about "Listening Around" when I've spoken to you on the air.

Share your story in AR ...

# CONTESTS

## CONTEST CALENDAR

AUGUST  
10-11 European CW Contest (Rules July AR)  
17-18 Remembrance Day Contest (Rules July AR)  
17-18 SARTC RTTY Contest  
17-18 KCJ CW Contest (Rules this issue)  
24-25 A1 Asian CW Contest (Rules July AR)  
24-25 GARTIC RTTY Contest

## SEPTEMBER

14-15 VK Novice Contest (Rules this issue)  
14-15 European Phone Contest (Rules July AR)  
28-29 YLRC Italiano 'Elettra Marconi' Contest (Rules this issue)

## OCTOBER

5-6 VK/ZL Oceania Phone Contest (Not yet confirmed)  
12-13 VK/ZL Oceania CW Contest (Not yet confirmed)  
26-27 CQ WW DX Phone Contest

## NOVEMBER

23-24 CQ WW DX CW Contest

## ALL CONTESTERS PLEASE NOTE THE FOLLOWING . . .

### CONTEST DISQUALIFICATION CRITERIA

A standardised approach is taken to the disqualification of logs entered in all of the contests which come under the direct control of the Federal Contest Manager appointed by the Federal Executive.

A perusal of these criteria will show them to be quite fair and well thought out. They are based on those used by the ARRL in administering their contests. It is suggested that you take note of this particular issue of the magazine for reference to these general rules in the case of all contests for the ensuing year. Details are as follows:

**DISQUALIFICATION.** An entry in WIA conducted contests may be disqualified if upon checking of logs, it is necessary that the overall score be reduced by more than two percent. Score reduction on does not include correction of arithmetic errors. Reductions may be made of unconfirmed QSOs or multipliers, duplicate QSOs or other scoring discrepancies. An entry will be disqualified if more than two percent duplicate QSOs are detected as being claimed for credit. For each duplicate or miscopied call sign removed from the log by the Contest Manager a penalty of deletion of three additional QSOs of equal value to the offending claim may be applied. The penalty will not be considered as part of the two percent disqualification criterion. If a participant is disqualified under these aforementioned provisions that operator will be barred from entering the contests for that particular mode on the ensuing year, eg. Disqualification from the '85 RD Phone will prohibit an entry for the '86 RD Phone, however participation in the 1986 RD CW would be allowed.

Logs which are very untidy, illegible or incorrect in layout to a major degree may also be disqualified. The call signs of disqualified participants may be listed in Amateur Radio magazine together with the contests results.

At the time of writing these notes I am visiting the country town of Ceduna in the far west of South Australia. Whilst on the way here I could not help but consider the benefits of being an amateur radio operator living in the country. So much more space is available for the erection of antennas. I had visions of large arrays, tall towers, vees beams and rhombics running in every direction. This surely would be great for both DX and international contest working. I do remember though one year, when I top scored in VK5 in the Remembrance Day Contest, my equipment set up comprised a 40/80 inverted vee and a dipole for

20 metres both supported by the ventilation pipe at the back of the house and fed by a Collins KWM2A and operating without any linear amplifier. It is certainly possible to achieve excellent results with a simple installation and no doubt operating technique must play a very large part in this. Still, large antenna installations and the often nice low local noise level conditions, often found in the country, would be very nice not to mention the lack of high level local QRM with the nearest amateur being well over 322 km (200 miles) away. Coming to the country does not mean that one necessarily leaves behind the benefits of modern life. These notes are being prepared on a computer controlled word processor owned by my daughter and son-in-law. Such modern magic means that I can correct all my typing mistakes before printing out the result, (well that is in theory anyway) and thus the typesetters will not have to put up with all the corrections made using white out and my rather old typewriter can stay in the car where it was stowed just in case I couldn't cope.

As this is my first visit to Ceduna I will be taking the opportunity to have a look at the Overseas Telecommunications Commission Satellite Earth Station. Perhaps this may whet my appetite again to do some amateur satellite operation. Incidentally, such a thought takes me back to somewhere about 1962 when I recorded signals from the first OSCAR satellite using a 16 Yagi steerable array at the NASA Satellite Tracking and Data Acquisition Network Station at Island Lagoon near Woomera. It was most exciting to hear the 'HI' being transmitted by this forerunner of the much more useful amateur satellites and I feel sure that not very many of us foreseen just what marvels were in store.

The previous comments may seem not connected with the subject of contesting, however my belief is that all our experiences can benefit us in many ways should we but take the opportunity to use them and apply them in the right manner.

As you read this column you will probably be close to preparing your station for the 1985 Remembrance Day Contest. I hope that you will approve of the latest changes to the rules and also that you have studied them carefully. I would also strongly recommend that you look at the matter of preparing your paper work in advance, particularly the 'check' sheets for each band. I suggest that you look back at the Example Contest Check Sheet published in this column in the December 1984 issue of 'Amateur Radio'.

I have been provided with a copy of rules for the 'Keymer's Club of Japan' (KCJ) Single Operator CW Contest and also the YLRC Italiano 'Elettra Marconi' Contest. You will notice that the KCJ Contest clashes with our Remembrance Day Contest. Perhaps this will mean somewhat more QRM in the CW portions of our bands. Whilst these contests would probably not be considered as being major events on the calendar I have provided the rules for your interest.

Our major Australian event for next month is the VK NOVICE CONTEST as indicated in the calendar on 14th and 15th of September. The rules for this contest are basically unchanged from last year. I would anticipate that, as usual, there will not be very many entries in this contest coming, as it does, right on top of the Remembrance Day Contest. If my intentions come to fruition the 1986 Novice Contest will probably be held in the month of June. It is somewhat unfortunate that it was not possible, despite my efforts to achieve change in this way, to have the date of this contest moved for 1985.

With the Novice Contest comes the end of the major contests organised by me on behalf of the Wireless Institute of Australia for the year. The only other major contest remaining for the year is the VK/ZL Contest which is separately organised. I hope that you have enjoyed the contests provided for your benefit this year and that you will continue to support

Ian Hunt VK5QX  
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001

these contests next year. In the intervening period I will be kept quite busy checking logs, preparing certificates and carrying out the various other tasks required of the Federal Contest Manager as well as preparing the notes for this column. I will certainly be interested in hearing more comment and opn on from you should you feel inclined to write and express your ideas on the contest scene.

### VK NOVICE CONTEST, 1985 — RULES

**CONTEST PERIOD:-** From 0800 UTC 14th September 1985 to 0759 UTC 15th September 1985

**OBJECTS OF THE CONTEST:-** To encourage contest operation of amateur radio stations in Australia, New Zealand and Papua-New Guinea with special emphasis on contacts with novice and radio club stations.

**STATIONS ELIGIBLE:-** Only stations in VK, ZL and 2P call areas may enter. No stations outside these areas are permitted to be worked or entered in a log for the purposes of this contest. Except for radio clubs, no multi-operator working is allowed. Stations in the same call area may contact each other as well as contacting stations in other call areas.

**CONTEST BANDS:-** A 1M operation must be confined to within the novice frequency sub-band allocations in the 10, 15 and 20 metre bands. No crossband operation is permitted.

**MODES OF OPERATION:-** On V phone or CW may be used. In the CW mode operation must not exceed a speed of TEN WORDS PER MINUTE. This is to encourage the use of CW by al operators and to allow improvement in this mode by those operators who do not usually practise same.

**CONTEST SECTIONS:-** (a) Phone — Novice / Full Call (b) CW — Novice / Full Call (c) Listeners.

**SCORING:-** Transmitting Entrants. For contacts with a novice station — five points. For contacts with a club station — ten points. For contacts with a full call station — two points.

Listener Entrants. For novice / novice contact — five points. Novice / full call contacts — two points. Full call / full call contacts — two points. Any contact with a club station — ten po points.

**CALL PROCEDURE:-** For phone operation call 'CQ Novice Contest' and for CW operation call 'CQ Novice'.

**CONTACTS** Any station may be contacted only once per mode per band.

**NUMBER EXCHANGE:-** On phone stations must exchange a nine number comprising an RS report followed by three figures. These figures must commence with 001 and increase sequentially by 'one' for each contact up to 999. If 999 is reached the serial number is to revert back to 001 and the sequence recommenced. For CW, stations must exchange a serial number comprising an RS report followed by three figures on the same basis as described above for a phone contact serial number. Radio club stat ons must ADD THE LETTER 'C' following the serial number.

**LOG ENTRIES:-** Each log sheet should be laid out such as to provide columns in the order given as follows: Date / UTC Time / Band Mode / Station Contacted / Serial Number Sent / Serial Number Received / Claimed Score / Total C claimed Score should be shown at the bottom of the Claimed Score column for each page. Each log sheet must be endorsed at the top 'VK NOV CE CONTEST, 1985'.

**FRONT SHEET:-** A FRONT SHEET must be attached to each log entered and must carry the following information: Name of Operator / Address / Call Sign / Section Entered / Claimed Score.

**DECLARATION:-** The front sheet must also carry a declaration which states that "I hereby certify that I have operated within the rules and spirit of the Contest". Each entry must carry the signature of the licensed operator of the station and be dated accordingly. In the case of club stations the entry must

be signed by a responsible officer of the club committee or a licensed operator delegated by the committee to do so. In the case of multi-operator stations the call signs of participating operators must be so shown on the front sheet.

**REGULATIONS:** All stations participating in the contest must be operated within the terms of the station licence and applicable regulations.

**SUBMISSION OF ENTRIES:** Logs are to be forwarded to the Federal Contest Manager, Box 1234, GPO, Ade Aide, SA, 5001. Envelopes are to be endorsed "Novice Contest" on the front outside. Entries must be posted so as to reach the box number no later than 28th October 1985. Any entries received later than this date may be used as Check Logs only.

**CERTIFICATES:** Certificates will be awarded to the top scoring entries in each section at the discretion of the Federal Contest Manager and to any other entrant where meritorious operation has been carried out in the opinion of the Contest Manager.

**TROPHY:** The "Keith Howard VK2AKX Trophy" will be awarded to the Novice entrant with the highest aggregate score from both the phone and CW sections of the contest. This trophy is a perpetual trophy and will be held by the winner until such time as it is awarded to a winner of a subsequent Novice Contest. Should two or more aggregate scores be equal a decision will be based on a count back as to the greater number of novice stations listed in each log entry. Should a count a score be equal the log containing the greatest number of CW contacts will be preferred. In the event of a tie after these rules the logs will be placed before a committee which will exercise a vote as to the nearest and most meritorious entry.

**DISQUALIFICATION:** The Contest Disqualification Criteria as published in this issue of "Amateur Rad' off" shall apply. Any station observed during the contest as constantly departing from the generally accepted code of operating ethics may also be disqualified.

### KEYMEN'S CLUB OF JAPAN (KCJ) SINGLE OPERATOR CW CONTEST

Object

To work as many amateur stations in as many Japanese prefectures as possible using Japanese CW bands. Single operator amateur stations worldwide.

Starts 1200 UTC Saturday followed by the third Sunday in August; ends 1200 UTC the Sunday 17-18th August 1985.

Single operator, CW only; a. All Bands, b. 5 single Band.

JAs — RST plus Prefecture Code.

Others — RST plus Continent Code.

Contact with a multioperator station, crossmode or not CW, broadband, via repeater or satellite, out of Japanese CW bands (by JAs only).

POINTS: One point for the complete contact with a station in Japan on each band.

MULTIPLIERS: JAs — Forty-seven Japanese prefectures and six continents on each band.

Others — Forty-seven Japanese prefectures on each band.

FINAL SCORE: Multiply points by sum of multipliers.

Log should indicate time in UTC, call sign and exchange. Multipliers should be clearly marked in the log only the first time it is worked on each band. Use a separate sheet for each band. The call sign of the entrant should be indicated in every sheet of the log. Each entry must be accompanied by a Summary Sheet.

Certificates will be awarded to the top through the third scorer in each entry category and the top scorers in each

continent and Japanese prefecture who are ranked in the higher half of the whole entrants in each category. All scores will be published. It is available by 1 IRC (surface mail) or 7 IRCs (air mail) enclosed with the log. Disqualification: An entry with more than two percent duplicate and/or invalid contacts left on the log will be disqualified. Violation of amateur radio regulations and/or the rules of the contest will cause disqualification. Decisions of the KCJ Contest Committee are official and final.

Deadline: All entries must be postmarked no later than the 31st October 1985 and mailed to:

Nagashima Takayoshi JA7GAX  
20-6, Kabasawayama, Imozawa,  
Miyagi-ken, Miyagi-ken 989-32  
JAPAN

### REFERENCES

**Japanese CW Bands**  
10.500 5 MHz 22.000 28 MHz  
3.500 3.525 MHz 50.010 50.100 MHz  
7.000 7.030 MHz 144.000 144.100 MHz  
14.000 14.100 MHz 430.000 430.100 MHz  
21.000 21.150 MHz 1.296.100 1.296.500 MHz

**Japanese Prefecture Codes**

AC Aichi MJ Hiroshima  
AM Aomori IB Iwate  
AI Akita IK Iwate  
CB Chiba IT Ibaraki  
EH Ehime KK Kagawa  
FK Fukui RG Kochi  
FO Okinawa KU Kumamoto  
FS Fukushima EM Miyazaki  
GI Gifu ID Nara  
GM Gifu IT Kyoto  
HG Hyogo SI Saga  
HK Holland MG Miyagi  
SH Shimane

**Continent Codes**

AF Africa NA North America  
AS Asia OC Oceania  
EU Europe SA South America

Japanese multioperator stations can be identified by their call signs.

Prefix: JI through JPD and JPI  
Suffix: RL  
Suffix of 3 letters originated by Y or Z

Int: JI[3]VA, JI[4]ZBC]

### THE ITALIAN YL RC "ELETTRA MARCONI" PROMOTES THE VIIIth INTERNATIONAL CONTEST 1985 TO CELEBRATE THE ETRUSCAN YEAR

AIM: To further activity between Italian YL stations and the rest of the world. QSO must be between Italian YL stations and Italian or Foreign YL or OM stations.

**CATEGORIES:** Single YL operator, single OM operator, SWL.

**BANDS:** All bands: 1.8, 3.5, 7, 14, 21 and 28 MHz on the usual YL contest frequencies.

**PERIOD:** From 1300 UTC Saturday 28th September 1985 to 1700 UTC Sunday 29th September 1985

**CALL:** CQ YL/OM CONTEST for PHONE, CQ YL/OM TEST for CW

**REPORTS:** RST with progressive numbers (start 001) Italian or Foreign members of RC will add RC to their reports to indicate they are club members.

**SCORE:** One point for each contact between Italian and ISO stations, two points for each contact between Italian and European stations. Three points for each contact between Italian stations outside Europe. Each station may be worked only once on each band. The score will be phone/phone or CW/CW. The score is the same for phone and CW.

**MULTIPLIERS:** a) A multiplier of one for each DXCC country and call area of USA, Canada, Japan, and Australia on each band. b) A multiplier of FIVE each member of YL RC contacted on each single band. This multiplier is not valid for QSO between YLs of RC. For the SWL, one point for each Italian,

150, or Foreign YL heard on each band.

**FINAL SCORE:** This is obtained by multiplying the sum of the QSO points by the sum of the multipliers (a) and (b) obtained on all bands.

**LOGS:** Logs must be sent no later than 31 October 1985, to the YL RC Award Manager 10VOK Olga Scalan, Via Conte Verde No. 50, 00185 ROMA, Italy. Separate logs must be used for phone and CW, and for each band, and a summary sheet must be added. Forwarding of the log means the acceptance of the present rules and the decisions of the Manager which are to be considered final.

**PRIZES:** There are plaques, medals and diplomas for the first classed in CW and phone in the following categories: YL members of YL RC, Italian and Foreign YL OM and SWL.

## MAGAZINE REVIEW

Roy Hartkopf, VK3AOH  
34 Toolangi Road, Alphington Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (IN) Information of particular interest to the Novice. (C) Computer programme.

**QST.** March 1985. 200 watt 23cm Linear (C) Field Strength Meter. (IN) International EME Competition.

(G) DX Contest Awards Programme. (G) RADIO COMMUNICATION. April 1985. RSG8 National Convention. (G)

**QST.** May 1985. 435 MHz Solid State Transistor the (C) AMSAT-OSCAR NEWS. June 1985. ACM News. (G) High Level Transverter Output from the FT102. (P) Satellite News etc. (G)

**73 MAGAZINE.** June 1985. RTTY Terminal Unit. (C) EM Exposure Dangers. (G) N) Special RTTY Issue

**AMATEUR TELEVISION HANDBOOK.** Revised edition (IN) 1984. General information, Circuits, SSVT, UHF Transmitters, Receivers Aerials etc. British Amateur Television Club.

**PRACTICAL WIRELESS.** March 1985. 430 MHz Yagi. (C) Practical ATV Techniques. (G) Radio Wave Propagation (G.N) Old Type Receivers, the R1155. (C)



### ARE YOU COMING . . . ?

The Wagga Amateur Radio Club is again hosting the Annual Convention of the Year, in a typical style that only Wagga can do.

Highlights include Foxhunts with great prizes (possibly the National Foxhounds Championship), Trade displays, Vintage Engine displays, Astronomical displays, Vintage Radio display, Model Aero displays, Auction and Trading table and of course time for rag chewing along with conducted car tours for the sightseers.

The dinner will be held at the Riverina Australian Rules Football Club with a sit-down three-course meal and entertainment.

We have three motels booked for the occasion plus accommodation at the site for a nominal charge. Caravanners welcome also with on-site power and amenities.

This Premium event is being held on Saturday 26th and Sunday 27th October 1985 at the Currong Scout Camp, approx 9 km S/E of Wagga.

Please watch for the insert in AR August for full details de Jeff VK2KCL.



# AWARDS

Joe Ackerman, VK4AIX

5 Koomoolee Court, Mermaid Waters, Qld 4218

The 75' and 150' awards have certainly stirred up some interest in awards amongst amateurs and SWLs. I hope that this interest will continue as many clubs have awards available. Club nets assist greatly in obtaining these awards.

Costs of awards vary greatly and for those interested there are awards for which no fee is required. Bermuda — WA8 Award  
China — CE 25 Award  
Finland — OH 100 Award  
ARRL — AI-OP Certificate of Merit  
White Rose Award  
Canada — Vernon Winter Carnival Certificate of Merit  
Canada — CW Operators of the British Commonwealth

## THE LAWRENCE HARGRAVE AWARD

This new award, sponsored by the Illawarra Amateur Radio Society measures 27 x 20cm. The background is light blue with the printing in royal blue. As so depicted are some of the inventions of Lawrence Hargrave, who was one of Australia's earliest pioneers in aviation.

The conditions for obtaining the award are: UK stations require 10 contacts with IARU members. Overseas stations require 5 contacts with IARU members. Contact with the Club station VK2AMW is sufficient in itself for the award.

A Club net is held each Sunday night at 1000 UTC on 3.560MHz +/-.

Applications must show date, time, frequency, station worked and be forwarded to: The Awards Manager, Illawarra Amateur Radio Society, PO Box 1838, Wollongong, NSW 2500.

THE GLADSTONE AMATEUR RADIO CLUB

Queensland

CRIMSON CRUSTACEAN

CERTIFICATE



Simply

## THE CRIMSON CRUSTACEAN CERTIFICATE

This is a new award printed on a yellow background, the centre piece depicting a crustacean in crimson. The details are also printed in crimson. The design is a joint effort by the members of the Gladstone Amateur Radio Club who must feel satisfied on their endeavours.

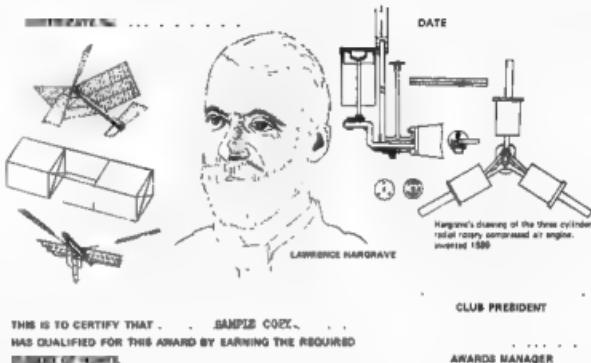
The conditions for the GARC award are:

- 1 All contacts must be on the same band and in the same mode
- 2 To qualify, a transmitting amateur must show evidence of a contact with:
  - a The Club Station VK4BPA
  - b 5 different member base stations
  - c 1 member station, portable or mobile
- 3 A SWL must show evidence of hearing the Club station as well as 5 members all on the same band and same mode
- 4 Evidence in the case of clauses 2 and 3 will be certified copy of the log, stating call signs, times, dates, modes and frequencies.

To assist amateurs and SWLs in obtaining the award

ILLAWARRA AMATEUR RADIO SOCIETY

## LAWRENCE HARGRAVE AWARD



A Club net is held each Thursday night on 80 metres at 0900 UTC.

The cost of the award is \$2.00 or 4 IRCs.

Applications to be sent to: The Awards Manager, Gladstone Amateur Radio Club, PO Box 1030, Gladstone, Qld. 4680.

## DIPLOMA IA 35.20

This award is sponsored by the Sakura Amateur Radio Club and requires contacts with amateur radio stations on the 35.20MHz parallel in Japan.

It is issued in three classes.

- Class AA: all 13 prefectures
- Class A: 10 prefectures
- Class B: 5 prefectures

Prefectures are Chiba, Kanagawa, Shizuoka, Yamanashi, Nagano, Aichi, Gifu, Shiga, Kyoto, Hyogo, Okayama, Tottori and Shimane.

QSLs are not required only GRC and the fee is 7 IRCs.

Applications to be sent to: Toshiyoshi Hashi, 62, Sakurai, Yoro-Cho, Yoro-gun, Gifu 503-12 Japan.

## ST GEORGE AWARD

Overseas stations require five points which can be attained by the Club Station VK2LE being worth two points, SGARS member is worth one point on any band or mode.

Australian stations require ten points. Club Station VK2LE is worth two points, excluding via all repeaters. SGARS members worth one point. Any band or mode.

If all contacts are made on CW or RTTY modes, a special silver sticker will be attached to the Award Certificate.

Copies of log entries signed by the applicant and countersigned by an independent fully licenced amateur operator are to be forwarded to: The Awards Manager, St George Amateur Radio Society, PO Box 77, Penshurst, NSW 2222, together with a remittance

## St. George Award



AWARDED BY ST. GEORGE'S AMATEUR RADIO SOCIETY  
WHO HAVE MADE THE GREATEST NUMBER  
OF TWO-WAY COMMUNICATIONS  
WITH  
MEMBERS OF THE SUMMERLAND AMATEUR RADIO CLUB  
OVER A 12 MONTH PERIOD

SYDNEY AUSTRALIA

SAKS  
KAWI NO  
PRESIDENT  
MEMBER

RECEIVED  
BY  
RECEIVED

of \$2 or equivalent made payable to the St Georges Amateur Radio Society.

QSL cards are not needed and the Award is available to all licenced amateurs and SWLs who have made the required contacts, or monitored as in the case of SWLs, on or after 1st January 1985.

## LA BALSA AWARD

All the necessary arrangements have now been completed by the committee of the Summerland Radio Club for the La Balsa Award to be available shortly.

## MOUNT ISA DISTRICT RADIO GROUP

### MINERAL FIELDS AWARD

COPPER

SILVER

BURKE TOWN

ZINC

CAMOWEAL

MT ISA



MARY KATHLEEN

LEAD

CLONCURRY

AWARDED TO

*SAMPLE*

AWARD NO.

SIGNED

See page 49, June AR for details of the  
Mineral Fields Award

Australian amateurs and SWLs are required to gain  
15 points. DX stations require seven points.

The Club Station VK2AGH counts as five points,  
member stations count for one point.

A Club net is held each Friday night on 3 605 MHz  
at 2130 UTC

Cost is \$2

Complete rules and requirements plus a sample  
copy of the Award will be published as soon as they  
are to hand

AR

## For QSL Cards

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PEKHUS

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papers are checked and com-  
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SUCCESSFUL CONCLUSION.

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THE COURSE SUPERVISOR,  
W.I.A.

P O BOX 1066,  
PARRAMATTA, NSW 2150

AR

QSP

#### SUBTITLES ON ABC TV

Almost all ABC TV transmitters and translator  
stations will have supertext subtitles for the  
hearing-impaired.

Viewers with sets which have text decoders will see  
a number of programmes such as Minder, Palace of  
Dreams, Life on Earth, One by One and some  
children's series subtitled.

The service has been telecast in every capital city  
for some time and the ABC, after tests, is to extend  
it to rural areas.

# INTRUDER WATCH



BILL MARTIN, VK2COP

FEDERAL INTRUDER WATCH CO-ORDINATOR

33 Somerville Road, Hornsby Heights, NSW 2077

Opening the column for this month once again with thanks to the following people who have supported the Intruder Watch with reports of intruders heard on the bands during April 1985.

VK2BQS, VK2DEI, VK2EYI, VK2PS, VK2QI, P Bokoski, VK2PB8, VK3XBA, VK3XU, VK4ADB, VK4AFO, VK4AKR, VK4AKX, VK4BG, VK4BH1, VK4KH2, VK4KZV, VK5B1J, VK5CZ, VK5TL, VK6AR, VK6JQ, VK6JZ, VK7RHM. Many thanks for continuing support from these amateurs and SWLs.

## SOME FAMILIAR — SOME NEW

April saw a large number of intruders reported, with broadcast stations accounting for 402 intrusions, CW stations accounting for 146 intrusions, RTTY stations accounting for 261 intrusions, and 20 using other modes, eg RTB, etc. 114 identifications were heard, some familiar callsigns, and some new. The harmonic of Radio 5AN, Adelaide, is still being heard on 3.565 MHz at the time of the April reports, and the woodpecker was reported on 7, 10, 14, 18 and 21

MHz. The infamous UMS (USSR origin) has vacated the 15 metre band, but, unfortunately, this is probably only his seasonal change, and he sticks to past habits, will show up back on 21.032 MHz when it starts of our summer. UNLESS he has vacated the amateur bands, as the USSR Administration has promised he would. Very much activity with CW on 20 metres for April, with many call signs being copied.

## TRAFFIC CEASED?

Last month I mentioned the commercial traffic being passed in the AMTOR mode on 14.069 MHz from a vessel which was currently in the Marshall Islands. W7JIE, the IARU Region 2 Amateur Interference Reporting System (AIRS) Director, writes that the FCC has monitoring stations on the frequency, and has opened a case against the persons responsible, and at the time of writing this column, I understand that the traffic has ceased.

This unauthorised use of the 20 metre amateur band was first detected by Syd VK2SG, and is a good

demonstration of the help which can be given to the Intruder Watch by amateurs who use specialised forms of communication.

If you have fact sheets for RTTY AMTOR, etc, and you come across like transmissions, please pass on the information to the Intruder Watch, who can try and do something about it. We need the help of all amateurs in this regard, as we don't have the specialised facilities. More on this particular case later when I receive more information from Washington.

## LET'S GO TO IT!

Looking forward to the warmer weather and hope to spend more time in the shack, as no doubt others will. Don't forget to make a note of the intruders you hear, and send it to your Divisional IV Co-ordinator who comprise VK1ZJR, VK2COP, VK3JY, VK4KAL, VK5CZ, VK6XZ (find Bruce under VK6KVV), VK7RH, and VK8HA, all QTHs. See you next month, and wish you all the best of DX.



# ALARA

Australian Ladies Amateur Radio Association

Librarian Bev Hebiton VK6DE  
Souvenir Custodian Joyce Aldridge VK3V8K  
Sponsorship Secretary Jessie Buchanan VK3VAN

## State Representatives

VK3 Bron Brown VK3NTD  
VK4 Margaret Schwenn VK4AOE  
VK6 Poppy Bradshaw VK6YF

At the time of going to press VKs 5/6 and 7 were hopefully filled but unconfirmed. We are still looking for a State Representative for VK2 and would be pleased to hear from anyone who could take on this position. It is not an arduous job.

We were delighted to be the first association to be affiliated, Federally, with the WIA and look forward to a long and happy association. We were also

pleased to participate in the Book Pack donation scheme (see June AR) and since then Margaret

VKA4AOE has presented a second pack to an Agricultural College near Dalby Marlene and I really

felt that we had got off lightly with the Regency Park presentation when we heard that Margaret had to present hers in front of the whole College! One of the questions that Margaret was asked, was, "are there any amateur operators in the Somali Republic, as a

couple of the students at the College come from there and find it hard to get news of home?" If there are any of you reading this who know of any amateurs in the Somali Republic would you please let Margaret or myself know.

Like Australia, many countries have a YL group. We know of groups in Italy, USA, Japan, Germany, Brazil, New Zealand, Great Britain, South Africa, Netherlands, Canada and Austria. We have a very popular sponsorship scheme whereby an ALARA member (YL or OM) can pay to sponsor an overseas (usually YL) into ALARA. You specify a preferred country, if you have one, to Jess e VK3VAN and she does her best to match you with somebody on her list. In turn, the overseas YL generally then sponsors you into her local association. It is certainly an excellent way of making friends and learning more about the other girl and her country.

And my final word is actua ly our "Commercial" for the week. As Father's Day is only a month away, what about buying him one of our new sugar spoons with a fluted bowl and the ALARA emblem of course, so that he can sugar his own cup of coffee/tea while you work the DX! (and as they are on \$4.50 you can buy yourself a keyring charm or teaspoon with the money you saved!) AR

Remains low in the evening sky, above the northern horizon, heading west.

**November 1985** — On 12th November it passes between a close pair of stars. At mag 8 it should be visible in small telescopes and powerful binoculars. On 16/17th it passes 2 degrees south of Pleiades and on 28th passes M74, on 10 mag spiral galaxy. It remains low in the northern sky each evening, reaching an altitude of 35 degrees and mag 7 at the end of the month and should be clearly visible in binoculars. On 27th it passes Earth, 91 million km away.

**December 1985** — Moves through Pisces and on 22nd into Aquarius. On 26/27th it passes 1 degree south of Aquarius and should be visible to the naked eye, mag 5, to country viewers. Will not be visible in the city. Moves to NW evening sky and will be highest (50 degrees) above the horizon around 10th December.

**January 1986** — Heading towards the sun rapidly, becoming lower in the evening sky. Hard to find after the 20th.

**February 1986** — Halley passes the sun 86 m from

on the other side of the 9th. Not visible until March and is low in the eastern morning sky. Bright with a good tail, reaches 30 degrees altitude on the 28th.

**March 1986** — Halley is at its best this month with a bright long tail, visible in the city. Visible in the eastern morning sky, higher each day until near y overhead at the end of the month. Moon, gib. 1/2, detracts from its splendour during the first half of the month.

**April 1986** — Moving rapidly becoming low in the SW morning sky. After 2nd, visible in the low SE sky. Total lunar eclipse on 24th with the best viewing opportunity. Rises 50 degrees above the eastern horizon in the evening sky late in the month, fading rapidly.

**June-December 1986** — Remains in Sextans, Crater and Hydra. Fades to mag 10.12 in June requiring a telescope to observe it.

## HALLEY'S COMET

It is probably the best known of all the comets and is due to return to us by 1986 for the first time in 75 years. Below is a diary of the comet from late 1982 to the end of 1986, as printed in The Propagator, June 1985 issue.

**16th October 1982** — The comet detected for the first time since 1911 using the Mt Palomar Telescope at mag 24.2 and beyond the orbit of Saturn.

**1984** — Halley moves inside Jupiter's orbit, spending most of the year between stars Orion and Gemini.

**January-March 1985** — Moving through Orion slowly reaches mag 16 and becomes within photographic reach of large amateur telescopes. Eventually object in the low NW sky.

**April-August 1985** — Mag 14.15, moving slowly in Taurus, evening object low in the N sky.

**September-October 1985** — Brightens to mag 12. In October moves back into Orion and then Taurus.

# SPOTLIGHT

## ON SWINGING

Robin Harwood, VK7RH  
5 Helen Street, Launceston, Tas 7250

August has come around again and that means that it is time for the annual Remembrance Day Concert. This year it will be held on the 17th and 18th SWLs are welcome to participate in the receiving section. Some even assist amateurs by acting as logkeepers. For further details and full rules, I would refer you to the July issue of this magazine. I wish you all the best.

### XPO REPORT

Over the Queen's Birthday weekend, I was very privileged to attend the 'DXPO' sponsored by the Australian Radio DX Club. It was held in Melbourne and provided unique opportunity for fellow DXers to meet and informally share their experiences within the hobby. It was, for me, an occasion where I was able to meet many of those who have been names on pieces of paper or spoken on the air.

There were talks on various aspects of the hobby, paying particular emphasis to antennas. There was also a talk on clandestine broadcasts from Central America by Bob Padua. As he said, the number of these stations seems to be variable, depending on the international situation. There was also a test for those keen DXers to identify an interval signals and/or foreign languages. I must state that I was somewhat surprised to be one of the winners of the competition. I would have expected others to fare well. Perhaps DXers are not paying enough attention to the identification of foreign languages.

These days, information is readily available on international stations with the times and frequencies of the foreign language output. By tuning into these regular transmissions, you will acquire the sound and feel of these languages. Then you will be able to identify a language from other broadcasters. As well, SWLs in Sydney, Melbourne, Brisbane, Wollongong and Newcastle have another air of foreign languages. The Specia, Broadcast Services air programmes in forty or so languages over MW. Also most international stations employ an interval signal prior to the commencement of their transmissions, so when you hear that a gong or jingle, you will be able to identify the station although you do not know the language.

### RADIO AUSTRALIA

As part of the 'DXPO', we inspected the Radio Australia complex at Burwood. Located at the corner of Highbury and Springvale Roads, the complex is on an 18 hectare site, where it is proposed to have the domestic radio and TV studios plus an administrative centre for the ABC. Radio Australia was formally located in the central business district of Melbourne in an old biscuit factory. The modern building was finished in late 1982 and is on three levels with a gross floor area of 6800 square metres.

It is air-conditioned and has its own 650 kVA supply to ensure continuity of operations. The studios are on the upper levels with each section having studios convenient to each other. Most studios have an external view out on to Burwood. Visitors can look into the studios through a viewing window without entering the technical areas. The lower levels are for amenities and parking.

It was interesting to observe the programmes going to air and see many being pre-recorded for later broadcast. It was a personal privilege to meet with Keith Glover as he operated from Studio Nine with the English programming. We remember hearing him compare the 'Matador' programme when I first commenced listening on shortwave some 30 years ago. In all, there are 18 studios and control booths plus five switch rooms, cartridge preparation and tape dubbing rooms, all designed to meet the rigid regulations set out for broadcasting equipment.

While I was in Melbourne, there was concern about staff reductions within the ABC, including Radio Australia. Programmes were disrupted on both MW and Radio Australia while stop work meetings were held. Further programme cutbacks can be expected with possible further industrial action in the future.

### FOLLOW-UP INFORMATION

A couple of months ago, I happened to mention the existence of a Radical User Group. I note in the March 1985 edition of "Practical Wireless" there is a new address for the group. It is now as follows:

Peter Barker GBBBZ,  
15 Epping Green,  
Woodhall Farm,  
Hemel Hempstead, Herts. HP27JP

Incidentally there have been some alterations to the DX programme information in the June issue. Swiss Radio International now broadcasts to Australia in English on 9.560, 15.305, 15.570 and 17.830 MHz. It is on 0830 UTC and repeated at 1000. "The Swiss Shortwave Merry-Go-Round" is now aired weekly with the "Two Bobs" on Saturdays. Judy Cooper has replaced Barry Seiber on Radio Australia's "Talkback".

The Voice of America publishes a bi-monthly magazine called "Voice". It contains articles about life within the USA as well as details of upcoming VOA programmes. "Voice" also lists details of their foreign language broadcasts, which I find very useful. It is free for the asking from the VOA, Washington DC USA 20547.

Incidentally the VOA have two releases for this area. The first one is from 2200 until 0100 UTC on 17.820, 17.740, 15.290 or 15.305 (all 2400) MHz. The evening release is from 1100 to 1500 UTC on a variety of channels, but the best are 6.110 (all 1400), 9.770, 11.715 (all 1330), 15.160 MHz, all from their Philippines site. You can easily hear their transmissions directed to the Middle East and Africa from 0600 UTC on 7.320 MHz.

While we are on schedules, here are the frequencies and times for several major international stations beaming to Australasia. Radio Sweden Int'l in English is on 15.115 MHz daily. Radio Japan in Tokyo, currently celebrating its 50th anniversary, has announced its programme schedules until March 1986. To Australasia it is on from 0845 till 0945 UTC in English. Radio Norway Int'l normally broadcasts in Norwegian, but it has a weekly English and Spanish programme on 17.740 with English at 1000 and Spanish at 1040 UTC. The rest of the week, Oslo broadcasts in Norwegian on that channel at that time. Radio Budapest has re-scheduled their DX programme to Mondays as from April. The times for their English programmes to Australasia are from 0930 till 1000 UTC on 17.710, 15.220 or 9.815 MHz. The Austrian Radio from Vienna beam to Australasia at 0700 on 11.840 and at 1000 on 15.270 MHz. English programmes are in a thirty minute block.

### IMPROVEMENTS?

Conditions of late have been extremely poor to say the least. I have never heard such poor propagation in my life. The maximum usable frequency (MUF) has been as low as 6 MHz in our evening hours. In the daylight hours, it rarely goes above 17 MHz. With spring coming up next month, I expect some slight improvement in the evening hours.

While we are on amateur radio schedules, I am prepared to have chats on air with those interested in SWLing. I would suggest Wednesdays on or about 3.595 MHz plus or minus QRM after the Intruder Watch Net concludes around 1100 UTC. Please feel free to join in.

Well, that is all for this month. All the best in the "RD". Good listening and the best of 73! Robin

# TEST EQUIPMENT

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UNIVERSAL NOISE MEMORY. Will record your CW messages on a reel to reel tape recorder. Good back up of continuous replay ideal for Contest work or VHF calling. Save \$30.00 Kit \$11.00 + \$4.50 post.

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DSB/BS DSBCW Direct Conversion 80 metre Transceiver. No case or knobs but includes all Components to make a Transceiver. Few only Kit \$70.00 + \$2.00 postage.

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PLEASE RING AFTER HOURS FOR STOCK SITUATION.

5 AMBLECOTE CRESCENT,  
MULGRAVE, VIC. 3170

ANSI



# WICEN NEWS

## WICEN CALLING FREQUENCIES

As a result of a motion passed at the recent Annual Convention on the following HF WICEN calling frequencies have been adopted

|            |            |
|------------|------------|
| 3.600 MHz  | 18.150 MHz |
| 7.075 MHz  | 21.190 MHz |
| 10.115 MHz | 24.950 MHz |
| 14.125 MHz | 28.450 MHz |

It is only necessary to keep these frequencies clear when there is a WICEN net operating on them, at all other times they are available for general amateur usage.

Calling frequencies are frequencies on which communications will originate, once established, nets may change frequency due to local conditions or practice, interference and other factors. Also it is not expected every division will adhere rigidly to these frequencies for training and liaison nets as local conditions may make them unsuitable in some parts of Australia.

## PAKENHAM SHIRE WICEN GROUP

On the 23rd May, the Group assisted the Narre Warren Rotary Club in the running of its annual TWO IN ONE SCENIC STAMPEDE FUN RUN, which followed similar runs in 1981, 1982, 1983 and 1984. So far the Club has raised over \$10,000 for the Anti Cancer Council of Victoria by these runs.

The WICEN operators provided mobile communications facilities at nine different points around the 20 km course, with some hand-held units being used around the start/finish area. Whilst a great

## WICEN MANAGEMENT

WICEN, by its very title, implies an affiliation with the WIA and in most divisions WICEN is managed by a sub-committee of the divisional council. Matters such as whether all WICEN members must be members of the WIA (perhaps for insurance cover), the chain of command for WICEN, funding of WICEN and the level of representation and autonomy are all divisional matters. If your WICEN group has not got a clear statement of its status, responsibilities and conditions under which it functions I recommend you obtain this information through the divisional coordinator. Some useful guidelines were provided in the AR September 1981 WICEN column. Divisional councils, working through their divisional coordinators, must establish clear, sensible, yet not overly constraining conditions under which WICEN can operate. The dichotomy between bureaucratic control by council and a wish to 'get on with the job of communicating' unfettered by unnecessary

deal of routine traffic was passed, fortunately no emergencies or problems occurred with the runners. The exercise proved very useful and successful, with all stations being able to contact each other clearly. The frequency used was 146.500 simplex, and the Group would like to thank other amateurs for keeping clear of the frequency whilst the exercise was on.

The amateurs who took part in the exercise were: VK3s, AX, DGS, TX, NNU, ZFT, DBB, BCY, YFC, ZYK, ATQ, KDS, BVA, YPK and BAF.

## MIDLAND ZONE WICEN

Unfortunately it is always the lot of the busy people that are supposed to contribute to various activities. My arm is currently being twisted up my back at a great rate of knots to contribute to this column after repeated requests have not produced any results. So here are some of the experiences of the Midland Zone WICEN group.

Our acti vites started last November with data transmits on tests for the CFA continued on to the Great Victorian Bike Ride, revisited Maryborough for the aftermath of the bush fires and found a foul plague on our back doorstep at the same time we were involved with the Lusty Mallee Rally. So from a little what have we learnt and what can be shared through this medium?

Our first lesson came from an unexpected area (as they all do) but certainly changed our attitude of compacency. The Bendigo repeater has a good coverage and I was anticipated it would be very useful for our two days of the Bike Ride communications. This was fine for day one but we were shocked to find that Maryborough was a dead spot for the control location for the second day. We believe possibly because of the shadow of the tower the repeater signal is on (not confirmed yet). Naturally we were ready for this situation when, with Ballarat, we revisited Maryborough for the fires and we set up a relay point at a high spot in the town.

Lesson two is a result of the Maryborough fires and the Mallee Rally where in both situations we were operating portable in other vehicles using magnetic base aerials and some hand-helds. Unless there is absolute saturation coverage of the area you need at least ten watts output to work effectively as a mobile where the distances are beyond about 15 km radius. Our experience is that hand-helds are not always effective to ensure good communications when used as mobile portable sets.

One lesson that follows on from the last is that there is a need to check the power source in any vehicle

you may be going portable in. Recently in the foul plague exercise one of our operators plugged into the cigarette lighter socket for power to his power pack for the handheld. He decided something was wrong when the power pack became very warm and strong odours were also evident. The vehicle was a diesel van with 24 volt supply. Fortunately the regulator in the power pack tolerated the 24 to 9 volt difference long enough for him to unplug and no damage was apparent.

So much for the handy hints the real lessons came when the Midland Zone were landed with simultaneous exercises at the beginning of June. We had a request for assistance from the Department of Agriculture in combating the outbreak of foul plague in the Bendigo area which continued over the long weekend in June when we were committed to running the communications for the Mallee Rally. A protracted exercise going more than two or three days needs a lot of preplanning and clear guidelines if effective communications are to be provided and the tolerance of friendships and relationships is not to be taken to breaking point. As Co-ordinator I am certainly the wiser from this bizarre happening and the need for all members of the team to communicate with one another about their feelings and the sharing of the tasks of planning. No one or two persons can effectively run protracted exercises without continual debriefing meetings – unfortunately one of our downfalls on this occasion.

The Mallee Rally was a different experience and one of enjoyment even though there was much fear and trepidation when organising it (albeit with good liaison) from a great distance without having previously been involved or having seen the location. From comments from previous people involved it was evident that there were some dead spots. To overcome this we planned to use our repeater to saturate the general area but this fell through owing to the Department of Agriculture disaster. With 24 hours

Ron Henderson VK1RH,  
FEDERAL WICEN CO-ORDINATOR,  
171 Kingsford-Smith Drive,  
Meola, ACT, 2615

constraints must be recognised and a healthy working balance struck. Council must realise W-CEN operators wish to communicate for their clients, and WICEN personnel must acknowledge that they are involved in only one facet of our extensive hobby.

In summary if you do not have terms of reference, such as divisional rules or by laws or a written statement of authority negotiate one and work with its conditions.

## LAST SUMMER'S ACTIVITIES

Now that the busy season of last summer is behind us what about a few short reports on WICEN activations? By sharing your experiences and perhaps lessons learned with others we can all become better emergency communicators. What about it? Let's hear from you

## Don Jackson VK3DBB

3 Gardena Street, Pakenham Vic. 3810

Any amateur operator in the area who would like to assist in this valuable community service could contact Don Jackson at the Shire Offices at Pakenham phone (059) 411 011, and would be made very welcome.

The value of WICEN has been recognised by all disaster combatting authorities, and the Shire of Pakenham is one municipality which has made specific provision in its DISPAN for W CEN to be called in if and when a disaster occurs.

## Don Hogg VK3XBL

WICEN CO-ORDINATOR MIDLAND ZONE.  
Box 155, Kangaroo Flat, Vic. 3555

notice George VK3AGM was set the task of coming up with an alternative. We discussed the principle of a 10 metre link to the dipole we already had installed 42 metres (140 feet) up on a local tower. The result from George was a 6 metre link with the squelch operating a relay to turn the two metre transmitter on for transmission of the audio on to 2 metres.

It worked well with minor difficulties but we believe it would be a better system placed half way into the area of operation. The command centre was some 7 to 10 km from Sea Lake where we had our aerial and the terrain seemed to impede the link without 3 element beams. Our area of operation was in the opposite direction to Sea Lake for some 30 km. This system also gives the opportunity to operate two channels on the same frequency if the link is remote from the base station and the other transmitter is located say at the base station. In fact at times we were operating direct on 2 metres when the link misbehaved for some unknown reason.

The success of the Mallee Rally was due in part to the many operators who had been there previously and this made the actual on of the task an easier task than if we had a large number of newcomers. The social gathering around the barbecue each evening was beneficial to the operation and gave the opportunity to discuss problems and share those rare experiences that only happened in front of your check point. We were most fortunate for quite some time about a dune buggy resting in the lake and the bogged brand new 4WD trying to recover it. We have a strong suspicion that both vehicles may belong to a Collins Street farmer type.

As was on the last sweep we were able to return at the end of the Rally and did not get the opportunity to say farewell to many of the team. I would like to express my sincere thanks to all who were part of the team and to say I enjoyed the new friendships that were made at the Mallee Rally.

This article about all the problems we experienced may give the connotation that the communications were not all that crash hot but the reverse is the case. In all the exercises we have been on in spite of the above problems we have been able to provide good communications and have won some commendation for our services. The problems experienced on y served to make us more aware of the problems for the next task and to learn from our mistakes.

The Zone has acquired four computers for mobile use to transmit information in WICEN operations. As some would know we developed a tone board based on the Kansas City Standard for the transmission of data and Ron VK3YHV the designer will use this board in the computers with software control of the facilities. We already have software design of the WICEN message format and have used this in the tests with the CFA. We believe much more effectiveness will be achieved in the future if this medium of message handling is used.

Left: Aerial array at the command centre. Left — 8m beam for the link to the remote 2m transceiver. Centre — 27MHz for listening to the recovery vehicles. Right — Mast with 80m dipole and direct 2m Slim Jim.

## REGION 7 EXERCISE . . . OTWAY SURVIVAL

Barry Abley VK3YXK  
Exercise Co-ordinator.



Upper Kalmna Falls.

The SES has called for WICEN support, to provide portable (pedestrian) communications at the scene of an accident.

A child has fallen from the Upper Kalmna Falls, in the Lorne Forest Park, in the Otway Ranges.

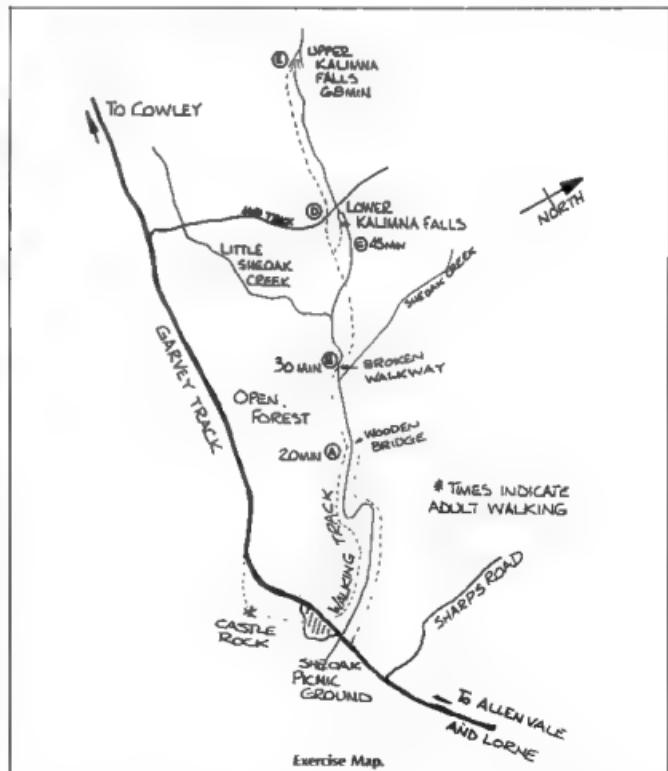
The child must be diagnosed by a doctor because of possible spinal injuries sustained in the fall. The patient is then to be carried out to a convenient location, to be picked up by helicopter for transportation to hospital.

This is the scenario which confronted Zone 7 WICEN operators during exercise 'Otway Survival', which took place on Sunday 9th June, in the forest behind Lorne. Twelve operators aged from 16 to 60 were divided into four groups, each with an important task if the victim was to be safely brought out of this rugged location.

The groups were required to undertake a variety of tasks including, moving to the accident site to relay the doctors diagnosis, setting the tapes and fire a smoke flare to assist the helicopter. A helicopter group was required to deliver a Bradford Frame stretcher to the accident site. A net control and support group were also required.

A cool overcast day and the Otway Ranges setting lent authenticity to this most successful exercise. Communications were achieved using hand-held 2m transceivers with each group, an FT480R as net control, and Group 1 carried an IC225, battery and antenna to the scene of the accident to ensure reliable signal strength.

This exercise has ensured that the operators in Zone 7 are able to confidently work in the Otways, which constitute a large portion of their zone.





## ORGANISING FIELD EXERCISES

A Discussion paper (WICEN)

**OBJECTIVES.** At the completion of this session, participants should be able to:

Plan, co-ordinate and implement training exercises.

Effectively respond to a request for communications support in a fast, efficient and confident manner, based on proper planning practices.

### INTRODUCTION

There are a number of factors to consider in planning field exercises, and in this session I will attempt to present and discuss the more important issues.

The implementation of a field exercise can be broken into three main stages of planning

(a) **PRE-EXERCISE** — involving liaison with services involved in the exercise, public relations, administrative preparation to determine manpower requirements, equipment requirements etc

(b) **EXERCISE** — administration and organisation of networks, liaison with all services, rostering etc

(c) **DEBRIEFING** — analysis of effect of exercise, report on ability of WICEN to handle specific tasks.

### WHAT IS COMMUNICATIONS?

It has been said that there are very few human activities we:

- \* value more
- \* understand less
- \* perform worse

than person to person communication on.

### Definition:

"WHERE A MESSAGE FROM ONE PERSON TO ANOTHER IS RECEIVED AND UNDERSTOOD BY THE SECOND PERSON EXACTLY AS THE FIRST PERSON INTENDED IT TO BE."

Communications can be divided into three broad categories

1 Telephone, telex, radio or any other form of communication relevant to field operations. Also includes communication by members of WICEN with members of the public, or members of other services, administrators and the public.

2 Non-emergency communications involving spoken, written or machine communications in support of administration or operations. Informal communications between members of WICEN, mostly in spoken form.

It must be remembered that the most expensive and complex of equipment is useless unless users are adept in a technical and communications sense. A member of WICEN who does not communicate adequately fails to gain comparable communication in return, and risks alienating people with whom he is dealing.

### RESPONSIBILITIES OF WICEN PERSONNEL

Each member of WICEN, regardless of position within the structure of the system, has responsibilities. All members of WICEN have important roles to play in counter disaster operations, and of particular importance are the roles of Local and Regional Co-ordinators.

Before planning any exercise, one must be aware of the responsibilities as a Co-ordinator, be it Local or Regional!

### REGIONAL WICEN CO-ORDINATORS

To promote an awareness of WICEN within their region among amateur radio operators, clubs and counter disaster authorities

To establish a good liaison with the regional operations officers of the State Emergency Service.

and/or relevant regional officers of other authorities. To ensure that each Local WICEN Co-ordinator in the region has good liaison with the local SES controller, local Police Inspector, and/or other counter disaster organisation staff.

To liaise with the local WICEN Co-ordinators within the region and to ensure that each is active and constructive in their approach to emergency situations.

To maintain records of Local WICEN Co-ordinators and operators within the region, with all relevant details.

To ensure all WICEN operators are trained and exercised in emergency procedures under the guidance of their Local WICEN Co-ordinator.

To maintain amicable relations with counter disaster organisations, and in doing so inform them of the existence and capabilities of the Local WICEN groups.

To monitor WICEN operations in an emergency and assist where necessary.

To be conversant with regulations pertaining to emergency communications as per the DOC handbook.

To ensure that the State Co-ordinator is informed of any changes in regional organisation of the network

### LOCAL WICEN CO-ORDINATORS

To promote an awareness of WICEN within their area amongst amateur radio operators and counter disaster agencies.

To organise, if warranted, a local emergency network to meet any requirements of an area. To organise regular practice exercises using correct WICEN procedures as laid down. To supervise the running of any such network

To act as liaison officer with the State Emergency Service in an area, and/or any other authorities as necessary

To maintain a close liaison with the WICEN Regional Co-ordinator and to act on such policies or suggestions issued periodically

To maintain a list of WICEN operators in an area together with all relevant details. Such information is to be lodged with the Regional Co-ordinator together with a plan for the local network and frequencies used locally

To be conversant with regulations relating to emergency communications as per the DOC handbook

### ORGANISING A CALLOUT LIST

There are four levels of activity for amateurs

Member of WICEN

Member of SES

Member of Third Party Traffic Net

Operator

It is important when compiling a list of those anticipating activity in WICEN to bear in mind that many WICEN operators, particularly in small communities, may belong to multiple organisations. This is a good thing provided there is not a conflict of interest.

It may be pointed out that if on a WICEN callout things are going slowly, members should not change allegiance midstream. This only makes it difficult for all

### KEEPING RECORDS — Suggested approach

Each WICEN Co-ordinator should endeavour to maintain an up-to-date list of all volunteers available for callouts or exercises.

The following information may be useful

**IDENTIFICATION** — Name, address and call sign

**CONTACT DETAILS** — Home and work phone numbers

**AVAILABILITY** — How long can the member afford to be on duty

**RESPONSE TIME** — How much time does the member need to respond to a callout

Mark J Stephenson VK3PI

VK3 REGIONAL CO-ORDINATOR

46 Fore Street, Whitemes, Vic 3757

**VEHICLE** — Type is it able to go cross country  
**EQUIPMENT** — Transceivers, bands, modes  
**POWER SUPPLIES** — Generators, mains supplies, batteries

### ACCEPTABILITY OF WICEN — PUBLIC RELATIONS

Liaison must be made with the public and relevant counter disaster agencies, capabilities established and mutual trust and respect achieved before embarking on practice or operational exercises.

WICEN has suffered in the past with an identity problem in achieving acceptability by counter disaster agencies. Rather than tell authorities what we can do and leave them to fit us into their plan, perhaps we can be progressive and see if we can solve their communication problems. If a disaster plan for the region exists, analyse it. If one does not, carry out a threat analysis (See Appendix One).

Public relations and liaison with all other services is of primary importance and aids your ability to:

- Plan your own exercises
- Plan co-operative exercises
- Be able to be recognised as a viable service when giving or requesting assistance

Having ascertained the likelihood of any particular disaster in your area, make certain you know and are known by your local co-ordinators. This may include CFA Local Captains and Regional Officers, SES Local and Regional Officers, Telecom Australia District Co-ordinators, and Disaster Welfare Plan Regional Co-ordinators.

When dealing with personnel of other services and/or the public be extremely conscious of the image you are projecting as an individual, and as a representative of WICEN. Of particular importance is your appearance when meeting people. Poor appearance in the form of untidiness or carelessness, arising from perhaps well meant informality, fails to impress. Adopt an attitude which will reflect the professionalism of the organisation you represent and act accordingly in your manner and dress.

### GUIDELINES FOR EXERCISES

**INTRODUCTION** WICEN exercises should be conducted regularly to train people in message handling, and to test field equipment. One of WICEN's and amateurs strengths is flexibility in the type of equipment we use and the range of frequencies available to us.

In conducting exercises objectives must include matching current communications capabilities moulded around a disaster plan needs, and testing/proving new communication techniques such as RTTY, portable repeaters etc. Training in the past has been dominated by practice in voice procedure and message handling. Organisers of exercises must also incorporate testing of frequency and equipment flexibility in their planning.

### POINTS TO CONSIDER

Simulated disaster exercises are of limited value unless organised in conjunction with other counter disaster agencies and on a large scale.

For general purpose training and testing, community support exercises are useful. These provide assistance to the community and "real" traffic is passed.

### WHO DO WE SELECT TO SUPPORT IN THE COMMUNITY??

(a) The Community aid exercise should have training value for WICEN operators and involve personnel in tasks similar to emergency situations

(b) It must be within the local groups capabilities and should demonstrate WICEN to local authorities

### DO WE REPEAT COMMUNITY AID EXERCISES YEAR AFTER YEAR??

All exercises should be debriefed thoroughly to

guage their worth. WICEN may be hooked into a support situation each year and drift away from the general training and exercise aims. When little exercise traffic is passed and the community event is adequately covered by other services, WICEN should not consider participating. Bear in mind that some exercises may be useful to both parties by strengthening ties and create support for our role.

Large exercises, including all n rail, etc. per od of operation are also good training and may include car races, canoe marathons, etc.

## EXERCISES AND THE DEPARTMENT OF COMMUNICATIONS

The Department of Communications is the regulatory authority governing amateur radio in Australia, and as such concerns itself with all aspects of the Amateur Radio Service. With regard to WICEN and exercises

DOC must be convinced that personal safety would be at risk without WICEN involvement, and that WICEN receives valuable exposure.

Permission for exercises must be obtained from DOC. Details of proposed exercises are to be conveyed to the WICEN State Co-ordinator as he is generally in close liaison with officers of the Department.

Regulations regarding exercises are listed in the Handbook for Operators of Amateur Stations. A request in writing must be received at least ten working days before the proposed exercise. The request should contain the following information

- frequencies to be used
- area of operation
- organisations operating during exercise
- declaration that amateurs receive no gain
- details of proposed types of messages (personal safety, accident reports etc)

All logs must be kept for 12 months.

## SUMMARY

Remember the word "P-EDGE" as it will remind you of those points to remember when organising field exercises.

**Plan** — your involvement and identify what communication you will be expecting or expected to supply.

**Liaison** — good early liaison with those groups you will be working with as a must.

**Effort** — put considerable effort into planning your exercises.

**Determine** — your groups capabilities, strengths and weaknesses.

**Guide** — members participating in exercises or as a support group should be treated no worse than the organisations helpers. This could include free entrance tickets, lunch for M's, car parking, use of c. rooms etc. You are providing a free service which would be quite costly if hired commercially.

**Ensure** — all WICEN members know their duties and I'm of responsibility.

## CONDUCTION OF THE EXERCISE

### Some tips on Communications

- \* **BE CLEAR** always use words and language the other person will understand
- \* **BE CONCISE** too many words confuse people
- \* **BE COMPREHENSIVE** cover all major and important points
- \* **BE POSITIVE** positivity helps to give confidence and helps to get the message across
- \* **BE COURTEOUS** courtesy is not a sign of weakness but gives the other person the right to be considered as a human being
- \* **REQUEST, DON T ORDER** where possible use the "we" approach as this will help those lacking confidence or who may be shy
- \* **BE PATIENT**

### \* LISTEN

### \* DO NOT

thoughtfully to each question giving it careful consideration

take an aggressive question personally treat it as evidence of concern and answer it fairly and calmly.

### Frequencies

There are no dedicated WICEN frequencies, only band plans. The authorised emergency network operations are accorded a clear frequency by regulation (See Handbook section 6.32). However recommended frequencies for operational use are the following.

**HF** 3 600 7 050 14 100 21 190 28.450 MHz  
**Secondary frequencies** are +25kHz for SSB and -25kHz for CW

**VHF** — Simplex Channel 6500 146.500

### Band sharing

The key to good operating is courtesy, tolerance and consideration on both sides. A short identified request along the lines of:

"..... Victorian WICEN is conducting a WICEN exercise in support of the local SES. A clear frequency would be appreciated. This is VK."

### Public relations

Frequently members of the public ask questions which appear on the surface to be shallow or stupid. Try not to assume this as questions may be asked out of ignorance or stoked by a situation or personal anxiety. They may be conversation openers with the real question to follow. Where the person appears under stress, the question in reality may be a form of seeking reassurance as well as guidance. A brisk or contemptuous reaction to the initial question gives no feeling of support or reassurance to comfort the questioner.

### Administrative procedures

In the past there has been a fallacy that the most important job one can do during an exercise is operate communications gear. True, it is an important job but one which ranks equal to that of administering an operation. The astute organiser knows that the running of an exercise requires operators, logkeepers, rostering staff etc. Guidelines for procedures and duties to be performed in an exercise are adequately covered in the publication "WICEN OPERATING PROCEDURES LEVEL 1".

Reference should also be made regarding the establishment of a communications network in an operation. Varying factors will determine the size and requirements of a network, perhaps the most important being the area of operation and availability of members with suitable gear.

## CONCLUSION

The preceding notes are by no means exhaustive and have been compiled in the hope that they form the basic building blocks for WICEN members to plan and co-ordinate their own exercises.

When planning exercises remember we are all communications orientated, and as such their will be no excuses for not communicating with those directly involved in an exercise, the public, WICEN members, or members of other authorities.

COMMUNICATION means CO-OPERATION, and CO-OPERATION means CONSOLIDATION.

## APPENDIX ONE

### THREAT ANALYSIS — SUGGESTED GUIDELINES

This involves grouping threats in your local area into probabilities of occurrences and seriousness of disaster. You should aim to satisfy the most likely occurrence in your area.

When planning involvement in countering disasters, and the training leading up to it, you should examine the relevance of the table entries to your local area.

**CONSIDER:** What are the most likely threats?

What can WICEN do to counter them at various levels of severity?

How does this influence training?

| SCALE OF DISASTER |   |  |                                   |
|-------------------|---|--|-----------------------------------|
| RISK              | MAJOR   | Moderate   | MINOR                             |
| High              | Excessive Flood<br>Drought<br>Cyclone<br>Wildlife<br>Storms | Flood (Flash)                                    |                                   |
| Med.              |   | Plagues  | Landslide<br>Temperature extremes |
| Low               | Epidemic  | Tornado<br>Sea invasion<br>Tsunami<br>Earthquake | Front                             |

## APPENDIX TWO

### HOW DO YOU RATE AS A WICEN OFFICER?

Do most of the local amateurs know you as a WICEN officer?

Have you given a talk at your local radio club on WICEN?

Have you organised a local WICEN net in your area?

Do you know the name of your local SES Group leader?

Do you know the name of the SES Area Controller?

Can you recite the phonetic alphabet?

Are you familiar with WICEN protocols?

Do you know how to give and take a map reference?

Have you emergency power and can get on the air without mains?

Have you a telephone?

Are you emergency minded and a survival skill?

Could you erect an emergency antenna within half an hour?

Have you a fully stocked first aid kit?

Have you a survival kit or emergency rations?

Have you a fire extinguisher in the house or car?

### ACKNOWLEDGEMENTS

The following references have been used in compiling this paper:-

1. WICEN NEWS series of articles 1979-1983 — Ron Henderson VK1RBT

2. Portable Station Instructions — Colin Parfrey VK3B-E

3. Introduction to Police Admin. Instruction Communications and Communicating — Mr V.M. Barnes QPM, AFAIF and Mr C. Proctor P.Hons Psych MA PIS, MACE PAM

4. Victoria Police Manual and Standing Orders

5. WICEN Notes — Peter Mitchell VK3ANX.

## MAN IN MOTION



The British Columbia PEP Amateur Radio Service is seeking support and amateur radio communication help for Rick Hansen — wheelchair marathoner, who will wheel 25,000 miles around the world. Rick will be in Australia during December 1985 and January 1986 and will wheel between Sydney and Townsville.

Are any members prepared to help by providing communications during the trip? If so, please contact the VK2 and VK4 Divisions, who will have more details.

# CLUB CORNER

## SEQTG & SEQATVG — A WORLD FIRST?

The South East Queensland Teletype Group and the South East Queensland ATV Group are co-operating to transmit the RTTY news from VK4TYY live on the ATV repeater on UHF channel 34.

It is now possible to watch the RTTY broadcast on UHF TV similar to a 'glass' RTTY terminal on the MI Cotton repeater, 3.6 MHz and UHF TV ch 34 every Monday evening at 1000 UTC.

From QTC June 1985

## DEVIL NEWS FROM THE NW BRANCH

There was a good gathering at the last Branch Meeting when one considered the poor, wintry weather.

The lease for the ATV repeater site has been renewed so it looks like the repeater will be on top of the mountain for a few more years.

A new antenna has been purchased by the Branch. This will save the beam being pulled down and moved for use at outside broadcasts, such as IOTA. The new antenna is a five band, trapped vertical.

The Branch also hopes to become the proud owners of a new HF set in the near future. Donations have been forthcoming from many members of the Branch, many thanks to them. The Branch has many good hearted people and it is a great feeling to be part of the people who give so much in so many ways.

RTTY is not yet operational as there is still much work to be done on the terminal, however Jack VK7WV has much of the work in hand, so hopefully I should not be too long before something is happening.

Two metre repeaters 2, 3 and 8 will be set for remote linking by the end of the year.

Florian Biner, the activities officer, has many projects planned for the future including the conversion of the Siemens printer to 45 Baud.

About 250 QSL cards were despatched but not many incoming ones, due to the condition of the bands.

The Canger Award was received by Tony VK7AX for purchasing raffle ticket books and not taking them to the meeting.

The meeting concluded with an interesting talk on SSTV by Tony VK7AX, which was enjoyed by all in attendance.

Thanks to Greg VK7ZBT for his assistance with these notes.

Contributed by Max Hardstaff VK3VK

AM

## MOOMBA RADIO CLUB

The Moomba RC have an award called the "Minnet The Mining Net" Award".

For further information about this award contact the club call sign VK5GAS or write to the Secretary, P1 Blades VK5APB, Moomba RC, Moomba Camp, FC47, GPO Box 563, Adelaide, SA, 5001.

AM

## WESTERN SUBURBS RADIO CLUB HONOURS MEMBERS

Recently the Western Suburbs Radio Club Committee and members paid tribute to five of their esteemed colleagues, whose efforts in supporting the Club since its inception have been extraordinary.

Pre-military discussions on forming a club were held on the odd 2 metre Channel "A" on 19 September 1969. This on-air discussion was convened to determine the possibility of forming a radio club to serve the north and west of Melbourne. Those present in the net included Ian VK3ANZ, Ian VK3ZFH, Ted VK3ZZO, Lee VK3ZKP, John VK3ZWL and Les VK3ZPB.

A meeting was then arranged in the You Yangs on Sunday 21st September 1969. The meeting was arranged to discuss the formation of the club. As a

Les Johnson VK3ZPB, (left) oldest founding member of the Western Suburbs Radio Club receiving his Life Membership Certificate from Club President, Mark Stephenson VK3PL.



Photograph by Luigi Ormano VK3ZD

result of discussions, and combined with the comments and thoughts of many XYLs attending, a formation committee meeting was planned. Three meetings took place on 21-11-69, 18-12-69 and 30-1-70.

The inaugural meeting of the club took place on the 20th February 1970, and for many years the Club convened each month at the Melbourne Caravan Park in Elizabeth Street, Coburg. Since 1983 the Club have occupied the Ern Rose Memorial Pavilion, Edwards Lake, Reservoir, where the recent presentations took place.

Muriel May received a Service Certificate for her excellent efforts in performing duties as Secretary of the Club during 1982 and 1983. Muriel is the XYL of

Neil VK3KHM, himself a hard worker for the Club. Muriel is the first ever recipient of a Service Certificate, and deservedly so.

Les Johnson VK3ZPB, the oldest founding member of the Club, was presented with a Life Membership Certificate. Les was the first Secretary of the Club in 1970, and performed this task also in 1971, 1972, 1973 and 1974. Les was Member of the Year in 1975, and Magazine Editor for several years.

Ted Howel VK3ZKP was presented with a Life Membership Certificate for his untiring services to the Club. As a foundation member Ted has consistently contributed his services for the benefit of others, and continues to do so.







# FORWARD BIAS

## VK1 DIVISION

Ken Ray  
PO Box 710, Woden, ACT 2606

### MEETINGS

The VK1 Division's general meeting for this month is on Monday 26th August in the studio room, Griffin Centre, Civic. Doors open around 7.45 p.m., with the QSL Bureau and Books available before and after the meeting. This month's topic is Test ECU parent and its uses. Visitors and non-members are most welcome, so come along and meet old friends, or make new ones.

### RD CONTEST

While on the subject of diary reminders, don't forget the Remembrance Day contest on the weekend of the 17th and 18th of this month. Let's all try to return the trophy to its rightful place (in VK1 of course). If all VK1s who enter the contest submit their logs, we should have a good chance. By the way, you can

hand in your completed log sheets at the August meeting, to save postage. The important thing is, though, to enjoy yourself and have a good time.

### UHF BEACONS

Two UHF beacons have been constructed by Dick VK1ZAH, and at the time of writing, were under test at a location on the south side of Canberra. No technical details are available yet, but the frequencies are:

70cm 432 410 MHz  
23cm 1295 410 MHz (I think)

A final location has not yet been determined, as there is insufficient room at the Mt Majura site for any more equipment. More details on these when they come to hand.

### JOTA

Don't forget that the 19th to 20th of October is JOTA weekend! If you can help, contact Alan VK1KAL. JOTA is an excellent opportunity to show to others the fascinating hobby of amateur radio, so if you can spare some time, let Alan know when you will be available.

If you are not able to help operate one of the VK1 JOTA stations, you may be on the receiving end of a QSO with a Scout or Guide group. If so, have patience, and encourage the young operators. Remember back to you first one — air QSO — they may be as nervous and as "mic shy" as you were — your understanding and encouragement will make it an enjoyable experience for them.



# VK2 MINI BULLETIN

Tim Mills VK2ZTM

VK2 MINI BULLETIN EDITOR  
PO Box 1066, Parramatta, NSW 2150

### WILL THE RD TROPHY REMAIN IN VK2?

This is an important month for the amateurs in VK2. Last year for the first time since the year the event was introduced (1948), that the amateurs in VK2 were the winners. We won it last in the first year. It has been too long between visits and would be nice if it remained here for a while. For it to do so however requires the annual contest, which is occurring this month — see rules in the Contest section in July AR.

The Remembrance Day Contest — long billed as the friendly contest — is worked on a ratio multiplier of the number of logs received against the number of licences issued in the State. For a State to do well requires first the operation by as many stations as possible and second the return of the logs. Will you set aside some time during the RD weekend to enter the friendly Contest?

### WICEN.

WICEN exercises being held during the remainder of this year include — Sun City to Surf 4th August, Car rally at Batemans Bay 21/22 September, contact Peter VK2PK for details. Outward Bound Hawkesbury Canoe Classic 26/27 October, contact Tim VK2ZTM. Schofields R Display 9/10 November, contact Syd VK2AH. WICEN members should advise early which events they are in a position to assist with and any other amateurs may also register their interest. In many cases your assistance would be welcome which would enable you to take part in the running the event provides and obtain an understanding the role that WICEN operation provides.

### RECENT HAPPENINGS

While reports are still coming in from the groups who took part in the 'Envelope' release on 22nd May, it appears to have been a most successful day and in some cases a week. Many groups in this country centres were able to have a poster and static display for the whole week.

The Oxley Region conducted a most successful field day over the June holiday weekend at Port Macquarie. Part of the prize presentation included handing over the trophy to Peter Alexander VK2PA, who was the winner of the 75th Anniversary CW Contest held on the 11th March.

A reminder that the South West Zone Convention will be hosted by the Wagga AR at Wagga over the weekend 26/27 October.

The next Conference of Clubs will be held Sunday 3rd November at Tealba and hosted by Westlakes ARC. Agenda items should be considered now and should reach the Divisional Office by 10th September.

### LECTURE BY KARL MEINZER DJ4ZC.

During Karl's visit to Australia it was Sydney's turn to hear his lecture on OSCAR 10 at the VK2 Division Parramatta Headquarters on Wednesday 29th May. Over 80 people attended. Karl's talk in Adelaide on the previous Monday was video taped and a copy is available for borrowing from the VK2 office. One sour note to the evening was that some cars were broken into and equipment stolen from them.

### REPEATERS ETC.

A meeting was held in Newcastle on 15th June to discuss a variety of repeater matters. The Central Coast

ARC are carrying out site tests west of Newcastle for a wide coverage 2 metre system. They are developing a 23 cm beacon. The Newcastle ATV and UHF group have submitted an application for an ATV repeater. They have also lodged a request to establish a 6 metre repeater. Packet Radio was discussed and it is expected that a repeating system will be developed for the region. Westlakes repeater VK2RTZ 7100 has been overhauled and relocated to a good site in the region of the TV services for Newcastle. The meeting then discussed the proposals from both Westlakes and Hunter-branch for RTTY repeaters. It was decided to accept both proposals. The system proposed by the Hunter-branch Radio Group would be a dual RTTY/Voice system with coverage towards the north and along the Hunter Valley. The proposal from Westlakes would be a RTTY only one from a site towards the south of Newcastle providing coverage over Lake Macquarie and the Central Coast.

There has been a lot of interest recently in new systems for VK2. A report on these proposals will be given next month.

Next month — the start of Spring — will feature another VK2 Division Specia with the pages of AR.

A reminder that the Divisional Office is open Monday to Friday 11 am to 2 pm, and on Wednesday nights 7 to 9 pm. Phone 02 689 2417 during these times. At other times the 'message on y' answering machine will advise you of the office hours.

The office has a full range of the 75th clothing, together with the range of publications from various amateur radio publication sources.



### SIGHTLESS AMATEUR ON PACKET RADIO

25 April 1985 marked an important event for the Rochester packet radio fraternity. 1985 has seen rapid growth of packet in the Rochester area, but the highlight has to be the appearance on packet of Water Keleher KA2ASL. What's so unusual? Walt is blind!

Operating on voice or CW without sight presents some challenge, but think about operating on packet radio without your sight. Sending is not a big problem, since Walt can touch type, but receiving is another story. Walt has an Apple IIe computer, an Echo-voice

synthesiser and a specially developed terminal programme. This terminal programme unites the computer/terminal and the text-to-speech functions of the synthesiser or "talker". Whatever appears on the screen of the computer is "read" by the talker, in nearly perfect speech. If pronunciation errors are made, Walt can back up to get a repeat or to have the unit spell out the unknown word or phrase.

On the evening of 25 April, Dave Denz N2DWL and Mark Wimwick both members of the Rochester Packet Group, went to Walt's home and set up his TNC and radio. After a short period of instruction and coaching the big moment arrived. The equipment worked perfectly. Walt worked WB2NWL, K2YNW and W2DUC in rapid succession. While Walt was taking his time learning about packet operation, the rest of the gang was taking turns sending to him. Walt reports that they are perfect copy, but all seem to have a Swedish accent (a common trait of text-to-voice processors).

It was an exciting evening, introducing Walt to packet radio and helping him overcome a great barrier.

From W2DUC

From the ARRL Packet Radio Newsletter "Gateway" May 1985.

Contributed by David Pliley VK2ARD.

### HF PACKET RADIO

David VK2AYD is interested in conducting HF tests using 1200BPS with other amateurs interested in Packet Radio. As a tentative start he will be on 14.103 MHz (circa QRM) every Sunday at 0100 UTC. David is also prepared to try any other amateur band at any time outside of working hours. Interested amateurs may contact David on (02) 452 5441.



# VK3 WIA NOTES



## THE 1985/86 COUNCIL FIRST MEETING

Elect of officebearers has resulted in no change to the ma or positions.

Re-elected were Jim Linton VK3PC President, Des Clarke VK3DF5 Secretary, Bill Wilson VK3DXE Vice President and Council Chairman with Lindsay Rohrach VK3KAF, the Treasurer, an office filled at the end of each divisional financial year on 31 December.

The President is now in his third term, and the Secretary has held that office for most of the past five years.

Other councilors were John Adcock VK3JAC, Andy Chan VK3DPJ, Alan Heath VK3KZ, and Barry Witten VK3XV.

Among the first business of the new Council was a review of Vic v General Meetings. It was resolved to accept the invitation of member clubs to use their venues.

Quarterly meetings were to be arranged at club venues with meetings on other months to become rather nights at the Wreathless Institute Centre.

Full details of the new arrangements, including publicity about the location of quarterly meetings and guest speakers, will be published most likely as an insert in AR, and on the Sunday Broadcast.

## CLASSES AND REVISION WEEKENDS

The next theory and Morse classes run by the Vic Div begin soon and prior enrolment is advisable.

Novice theory and Morse classes begin Tuesday, 27 August, AOCOP theory starts Monday 26 August, with AOCOP Morse on Tuesday 27 August.

Anyone can go to take the theory and Morse classes separately.

Theory revision weekends will be held very soon for those intending to sit the next DOC exams.

The Novice weekend is on 3/4 August and AOCOP theory being covered on 10/11 August — book you're in now to avoid disappointment.

To secure a place in either the regular theory and Morse classes, or the special theory revision weekends, write to the Educator on Officer, Wireless Institute, 412 Brunswick Street, Fitzroy Vic. 3065, or telephone (03) 417 3535.

Hard dedicated work by Fred resulted in \$8,000 income from the sale of disposals equipment.

Not only did the division benefit from the income, but members (including some in other divisions) had access to cheap equipment.

A third "LETTER" was presented to the RTTY Fixers Group which turned incomplete and damaged Siemens teleprinters into clean, working and reliable machines.

The group even provides a back-up self-help service for anyone who strikes a difficulty with their teleprinters.

The many manhours volunteered by group members greatly contributed to the disposals service and the RTTY scene generally in Victoria.

Arthur Fraser VK3BII accepted the "LETTER" on behalf of his fellow RTTY fixers.



First prize winner in the annual Kinnear Trophy for contributions by Vic Div members to AR magazine, was Ken McLachlan VK3AH. The President caught him by surprise when he announced the prizes at the 1985 Annual General Meeting. Ken was chosen first by the judges for his sustained effort as DX notes editor and photographic contributions. Second prize went to Lindsay Lawless VK3ANJ and third place getter was Des Grenham VK3CO — both had a series of articles published during 1984.

## REMEMBRANCE DAY CONTEST —

17 & 18 AUGUST 1985

Victoria has won this, the major WIA contest, only once, and that was many years ago.

Last year it was encouraging to have an increased number of VK3 submit logs.

This year, with just a little more effort, the RD Trophy will be Victoria's.

It would be appreciated if all WIA zones and member clubs help encourage participation by their respective members.

The message is simple:—

- Maximum participation is needed — a minimum valid log needs 25 contacts.
- As many Victorian call signs as possible should be put on air — dual call sign holders and zone/club call signs included.
- A free RD Contest Kit is available. Send a self-addressed A4 size envelope, plus 3 x 33 cent stamps to: RD Contest Kit, PO Box 270, Greensborough, Vic 3088.

As further encouragement, each Victorian radio amateur, zone or club submitting a log with more than 100 contacts will get an RD contest participation certificate.

There will be endorsement for each hundred, from 200 upwards.

A zone and club competition will be held again this year based on maximum percentage participation. For registration in this competition, a list of zone/club members must be with the VK3 RD Contest Co-ordinator before 17th August.

Mark Anderson, John Antone lo VK3ZAF, Reg Bagwell VK3VRB, William Babb VK3KWB, Michael Board Sergio Bagni VK3XAR, Allan Carr VK3CAC Kazimerz Gretschko VK3CKG, Evan Matthews, Ronald Raworth VK3CRR, Ian Rochester VK3VIR

Leon Reichelt VK3NLR, T. R. Smith VK3NTS, J. H. Struck VK3PSJ and John Svendsen VK3NL

Judith Arthurs VK3NLY, Ronal d Atkins VK3NVM, a Baker VK3YWR, R. Berger Ashley Bolton VK3NAH, Paul Casboll VK3ZAD, Peter Crawford, Frederick Dierck VK3KTC, Mark Fairbairn VK3XVC, an Fitzpatrick VK3BV, Robert Habel VK3KCH, Christopher Kayler-Thomson VK3CKT

William Land, Robertson McIne VK3KEL, Peter Wagantien VK3NAD, Russell Walker VK3CV and Westerland

## FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW  
59 Albert Street, Caringbah Gardens, SA 5039

Which VK5 old-Timer holds the record for having held a licence the longest? — and is he still on air (I say he because I know that there are no ladies eligible!) I don't know the answer to these questions, but perhaps YOU do, if so I should be very interested to hear from you. I do know of a couple who must be near the top of the list, I heard this week that John Bulling VK5XK "chokes up" 50 years in August, so congratulations John, but one better than that is Keith Ring VK5KH who notched-up his 50 more than 2 years ago, a great achievement indeed.

There must be many others about those early days which would make very interesting reading or listening. The only trouble is, how to get it. One suggestion being "tossed around" at present is that we could get some of the old timers to put their early recollections and anecdotes about amateur radio on to audio tapes. These could possibly be used as a regular Historical Segment for the Sunday Morning Broadcast. Peter Barlow VK5NPK, our distinguished Broadcast Producer, is quite enthusiastic about the idea, so if you would like to be involved, please contact Peter direct. We would also like to hear from anyone who made copies of the H Stora Segments that Les Diener VK5NJ made several years ago. Unfortunately, the originals were not kept, so we should be delighted to hear of any copies. Needless to say, we shall try to ensure that the same fate does not befall anything which is taped in the future which might have some historical significance. It is good that our 75th Anniversary has made us aware of our early beginnings — but let us make sure that nothing which we have now, be it a person's memories, a tape, photographs, or anything else, gets lost. Thank you, how much more important it will have become by our 100th Anniversary!

At the first Federal Convention that attended I was told that if I didn't bring back the RD Trophy wouldn't be allowed back into the State. So for four years (with your help!) I continued to bring back the trophy and what happens — the first year that I am not there to keep an eye on things they let the VK2s take it home! Joking aside, this is RD month once again, and as they say "you have to be in it to win it" so come on VK5 LET'S BRING THAT TROPHY BACK WHERE IT BELONGS!

## Diary Dates

17 AUGUST 18th Remembrance Day Contest  
27th AUGUST General Meeting

Two members proudly show their LETTER OF APPRECIATION issued by the President for service to the division.

Tn's new form of recognition was launched at the 1985 AGM.

The first ever "LETTER" went to Norm Dench VK3DNE in appreciation of the role he played in ensuring WICEN and our hobby were prominent at the Melbourne Airport open weekend last February.

WICEN provided ground communications and a comprehensive display stat on situated in a hangar was provided by members of the Western Suburbs Radio Club.

Retiring Disposals Officer Fred McConnell VK3BOU (pictured right) has made a truly commendable contribution to Vic Div in the past two years.

## NEW MEMBERS

A warm welcome is extended to the following:



# WA BULLETIN

## COUNCIL REPORT FOR THE YEAR APRIL 1984 TO MARCH 1985

One of the few things not to suffer from inflation is the council reports. I have noticed that they have become steadily shorter since 1981 and I hope this year continues the trend.

### MEMBERSHIP

We normally compare membership figures from one January to the next. We are not able to do this due to problems with the Federal Office computer, which has resulted in us not having received any EDP sheets since last November. However, on 17th November 1984 we had 744 members, exactly the same number as at the same time the previous year. This is the first year since the CB boom that we have not experienced a net growth.

These are difficult times financially and when the figures come with the unfinancials deleted, we expect to find we have lost a good many members. We lost 70 last year, we believe mainly attributable to subscription increases. For this reason, although the Federal portion of the subscription has had to be increased, we have held the divisional portion constant and even subsidised the Federal portion by 50c in the case of pens ones.

It is implicit in the two previous paragraphs that we must have elected 70 new members in the course of the year, some being new licencees and some previous members re-joining. We are glad to welcome them.

### MEETINGS

We have enjoyed at least three excellent lecture/presentations at general meetings during the year. But these have all been arranged by one or other of the council members. It's been impossible, either by threats or entreaty, to obtain a volunteer for Programmes Organiser.

Don Lorimer, assisted by Mark Bastin has continued to cater well for the needs of the 'inner man' (do we have to say 'inner person') at meetings.

The Christmas meeting was arguably the best of recent years and they have all been very good since we decided to move out of Science House on the third Tuesday of December. It was organised almost unaided by the redoubtable Bastin family — Cliff VK6LZ, Christine VK6LZ and Mark — at the Westral Centre. The DOC manager remarked that it was the most enjoyable he had attended.

### DEPARTMENT OF COMMUNICATIONS

We have continued to have excellent relations and receive cheerful co-operation from the Department

### WICEN

This group, which is still ably led by Don VK6DY and Syd Jenkins, will no doubt report separately but they appear to have had a quieter year than usual. Perhaps a time for consolidation on their growth. It is a pity that their work and dedication is insufficiently recognised by the authorities. Council voted \$400 to assist them with the construction of their own repeater.

### SLOW MORSE

This most useful service has been maintained but with the minimum number of volunteer operators.

### QSL BUREAU

From being in the red a couple of years ago, the bureau has traded itself back to a positive balance and still runs efficiently under the management of Jim VK6RL. It is interesting to note that the cost to users has been constant since September 1976 during which time postage must have increased by at least 50 percent.

### BOOK SALES

In the book shop Christine VK6LZ has shown herself a worthy successor to Chris VK6DV with a few special touches of her own. Book sales are almost our only source of income outside subscriptions. At Radio Rally she sold \$680 worth of books.

### JOTA

This year JOTA was a mixture of inflation and deflation. There was an increase in the number of operators but fewer scouts and guides participated. As usual, the bands went dead but JOTA always has a special meaning, perhaps because it bridges the generation gap.

### INTRUDER WATCH

Bruce VK6XZ is handsomely filling Dave VK6WT's shoes. There was an extra flurry of activity (and telesex) protesting about the use of amateur frequencies by contestants in the Hong Kong to Manila Yacht Race. We did not get much feed back but no-one could have been in any doubt about our feelings. Subsequently, one of the offenders had his equipment confiscated when he put into a NW port.

### NEWS BROADCAST

Under Douglas VK6ZMG, assisted by Allyn VK6ZGA, Chris VK6FC and Phil VK6AO, the broadcast is still very much our shop window to Australian amateurs, and a well deserved one. We added an 80m evening relay to our list of times and frequencies.

A thoughtful and thought provoking submission on broadcast matters was received from the Southern Electronics Group, supported by other country clubs. We appreciate their interest and goodwill.

### RADIO RALLY

This event was the highest of the year and even more successful than last year. Reading the description

Bruce Hedland/Thomas VK600

VK6 PRESIDENT

Box 10, West Perth WA 6005

of the long established and respected Gosford Field Day in AR, Rad & Rally seems to compare very favourably if it could be said to suffer any faults, they would be due to too few people trying to do too much.

As a result of their dedication in masterminding and bringing the rally to fruition, Chris VK6ALX and his long-suffering XYL Robyn were made Co-Amateurs of the year.

### REMARKS

As we all know, committees do not always get very good horses (the usua. resu. resu. being a case), and councils do not write good reports. It therefore falls to the President to do the actual writing. Because of this I feel free to say that the council members have been loyal, hardworking and shown quite exemplary co-operation and dedication on the part of all who have been fortunate to have such councilors.

There are undoubtedly other members who deserve to be singled out for thanks and I ask them not to feel slighted, but to give themselves the pat on the back they know they deserve.

If I had to sum up the year in a few words I would say it was very much 'the mixture as before', but we still managed to go forward in some areas. The phenomenon which I feel is evident throughout this report is the marked reluctance of amateurs to offer themselves for the many jobs which need to be done if our hobby is to survive and prosper. When there is some special project usua.ly the bare minimum of people come forward at the last minute but it is

### FINANCIAL REPORT OF THE WIA (WA DIVISION) 1984 BALANCE SHEET AS AT 31.12.84

| 1983  | LIABILITIES   | 1984  |
|---|---|---|
| 16,551.15<br>1,942.41<br>1,628.52                                     | 1 Accumulated Fund chwd.<br>2 SURPLUS (Trading Account)<br>3 Contingency Fund Interest<br>4 ACCUMULATED FUND chwd   | 20,152.05<br>1,023.81<br>1,582.72                                     |
| NET WORTH = 20,152.05<br>1,069.00<br>340.00                           | 662.37<br>5 50% of Accumulated Fund Advance<br>6 WARC-89 Fund b/wkd<br>plus this year   | 951.30  |
| 7,409.00<br>1,892.24  | 7 Sundry Creditors<br>8 Deceased Estate Suspence  | 1,409.00<br>362.50  |
| 24,115.69   |   | 22,758.61   |
| 1983  | ASSETS  | 1984  |
| 9,240.00<br>1,293.60<br>437.62<br>376.55                              | 1 CASH<br>— Contingency Fund<br>— TCU Cert. 10447<br>— TCU Cert. 10983<br>— TCU Cert. 11557 part<br>— Accrued Interest<br>— RAB Cheque Account<br>— RAB Golden Account<br>— TCBP<br>— TCU Cert. 11557 part<br>— Accrued Interest<br>— Bookshop Float<br>— Secretaries Float | 10,533.60<br>1,474.70<br>498.89<br>623.30                             |
| 11,547.77   | 5,546.23<br>3,599.81<br>137.23<br>2,921.11<br>717.55<br>nil<br>123.77   | 13,130.49   |
| 2,608.75<br>3,929.71<br>137.23<br>2,563.38<br>309.59<br>nil<br>123.77 | 9,671.47<br>2 Trading Account Stock<br>less Written Off<br>3 Equipment<br>— Bought Forward<br>— Purchases   | 5,546.23<br>3,599.81<br>137.23<br>2,921.11<br>717.55<br>nil<br>123.77 |
| 1,800.53<br>34.20   | 3 Equipment<br>— Bought Forward<br>— Purchases  | 1,291.02<br>211.10  |
| 2,242.91<br>596.60<br>1,498.37<br>351.00                              | 989.34<br>44.00   | 1,081.92  |
| 989.34<br>53.00<br>24,115.69  | 4 Sundry Debtors<br>— less Depreciation   | 333.40  |
|   |   | 699.94<br>579.35  |
|   |   | 2,363.21  |
|   |   | 28,814.63   |

Signed C. A. Bastin VK6LZ Mon Repasurer

14/4/85

We certify that we have examined the books and vouchers of the WIA (WA Division) and have found them to be kept in a business like manner and to record the true financial position of the Division at the close of the period. We have received every assistance in the Auditing of the Accounts, and compliment Mr Bastin on the informative manner in which the Books have been kept and the final accounts presented.

Signed E. Taylor VK6EKG

Honorary Auditor 30th May 1985

A. H. Van Den Asperg VK6HAA

impossible to get anyone to commit himself in advance to a pre-arranged task or roster I can understand people having to drop the membership in times of financial stringency, but not people spending tens of hours per week operating and exercising the ever-increasing privileges which are gained for them by the dedicated few without being prepared to put anything back into the hobby which gives them so much pleasure and interest. We on the council don't want just an audience. We want co-workers. If many people were prepared to spend just one hour a month helping the Institute we could have an organisation which would be the envy of all others.

Think about it. Please!

AB



## THREE MAJOR EXHIBITS DEBUT AT EXPO 86 CENTRE

2 May, 1985 was a crucial date for watchers of Vancouver's 1986 World Exposition. It marked the opening of the Expo Centre, a unique prelude to EXPO 86. For the first time in the history of World Expositions, the public will experience a major pavilion a year before the official launch of the main event.

Within the Expo Centre's 17 storey geodesic dome three major exhibits present the future. The most prominent exhibit is the 500 seat Omnimax Theatre with its 27 metre wide domed screen, a screen which surrounds its audience with images nine times larger than a conventional movie screen.

Called the world's most breathtaking medium, the Omnimax Theatre will feature the film *A Freedom to Move*. By turns philosophical, humorous, informative and, above all, exciting — this movie puts the audience inside a speeding train, a hang glider and other fascinating means of travel.

Another exhibit inside the Expo Centre is the 323 seat Futures Theatre where members of the audience have the fine word on the future. Visitors are first introduced to a show of dazzling computer graphics and laser illusions dealing with topics ranging from extraterrestrial intelligence to brain implants. Fifteen screens, a 16 millimetre projector and 12 speakers heighten the drama of the presentation.

The audience is then introduced to a series of future possibilities and asked to choose from these options. They vote through computer buttons set in the arm of each seat. The vote is then computed and the consequence of the majority vote is revealed through a second audio-video show.

The third exhibit is *Design 2000*, an exhibition of future technology. On display will be high-tech holography and space gear, a strap-on jet plane and "alternative technology" creations such as human-powered aircraft and a three-wheeled cycle that will do more than 80 kph on the freeway.

Restaurants, shops and a gallery of windows with a stunning view of the city and the EXPO 86 site are also a part of the Expo Centre.

AB

# WIA VIDEOTAPE PROGRAMME

## TITLE LISTING

See TITLE (in chronological order within  
the week selected programming)

|   | Lecturer        | Prod.  | Appr. Col./<br>Der. B/W | Year  | Prod. Description and Other Information               |
|---|-----------------|--------|-------------------------|---|---|
| <b>GENERAL INFORMATIONAL/PALMIE</b>                       |                 |        |                         |   |   |
| — The Ham's Wide World                                    |                 | AVRI   | 30 mins Colour          | 1980 Superseded by "The World of Amateur Radio          |   |
| — This is Amateur Radio                                   |                 | AVRI   | 15 mins Colour          | 1973 Pitched at beginners                               |   |
| — Moving Up to Amateur Radio                              |                 | AVRI   | 15 mins Colour          | 1973 Pitched at Others                                  |   |
| — 7310, Expedition  |                 | JWRI   | 60 mins Colour          | 1976 General amateur radio interest, Lots Only          |   |
| — This Week has 7 Days looks into Amateur Radio           |                 | HSRI   | 25 mins Colour          | 1978 Pitched at least, includes some ARRL coverage      |   |
| — Amateur Radio — The National Resource of Every Nation   |                 | WRSI   | 6 mins Colour           | 1979 Encyclopedic, good for public exhibitions          |   |
| — The World of Amateur Radio                              |                 | ARRI   | 30 mins Colour          | 1982 Pitched at adult level                             |   |
| — What to Expect when the RI Calls                        | Goff Carter     | ARRI   | 34 mins Colour          | 1984 General interest                                   |   |
| <b>HISTORIC INTEREST</b>                                  |                 |        |                         |   |   |
| — Wireless Telegraphy—circa 1910                          |                 |        | ?                       | 10 mins B&W   | 1910 Archive material courtesy David Wurstan, VK3ADW. |
| — Opening of British Griffon Bldg—SA HQ                   |                 |        |                         | WRSI  | 50 mins Colour 1977 Archive material                  |
| — History of ATVs in South Australia                      |                 |        |                         | WRSI  | 30 mins Colour 1980 Archive material, still building  |
| — ATV in Australia 1978—made for British ATV Club         |                 |        |                         | WRSI  | 30 mins Colour 1978 Archive material                  |
| — ATV in United Kingdom 1978—nippy from BATC              |                 |        |                         | GRIC  | 30 mins Colour 1978 Archive material                  |
| — Island Hunter Expeditions                               |                 |        | 2.75, 10                | 20 mins Colour  | 1984 Archive material, No Learn of Copy Available     |
| <b>INTERNAUTS &amp; JOURNALISM</b>                        |                 |        |                         |   |   |
| — GGC's Aerial Cross                                      | GRIC            | WIA    | 90 mins Colour          | 1977 The Definitive Antarctic Lecture, John Only        |   |
| — Wave Awareness  |                 | WRSI   | 40 mins B&W             | 1983 Antennas for HF and Antenna Tuners                 |   |
| — Loaded Wave Antennas                                    |                 | WRSI   | 50 mins Colour          | 1980 Using Inductive and Capacitive loaded Antennas     |   |
| — Getting Started in Understanding the Ionosphere         |                 | WRSI   | 10 mins Colour          | 1984 Now the ionosphere acts as HF communication        |   |
| <b>SPACE—GENERAL INTEREST</b>                             |                 |        |                         |   |   |
| — Apollo 13 Disaster                                      | WRSI            | WIA    | 90 mins Colour          | 1980 Australian tracking procedure aimed Apollo 13      |   |
| — SSTV Pictures from Space—Voyager                        |                 | WRSI   | 90 mins Colour          | 1983 SSTV as converted from Saturn 1B                   |   |
| — Amateur Radio's Newest Frontier                         |                 | WISGR  | 24 mins Colour          | 1983 Shavers, Hamm in Space — Shuttle STS-8             |   |
| — Australia—Australia's Domestic Communications Satellite | WISGR           | WIA    | ?                       | Colour 1984 In production                               |   |
| <b>AMATEUR SATELLITES</b>                                 |                 |        |                         |   |   |
| — Lecture—Tracking Oscar                                  | WISGR           | WISGR  | 40 mins B&W             | 1978 Superseded (see below)                             |   |
| — Getting Started in Amateur Satellites                   | WISGR & WISGR   | WISGR  | 60 mins Colour          | 1983 Superseded (see below)                             |   |
| — An Introduction to Amateur Satellites (Pt 1)            | WISGR           | WISGR  | 60 mins Colour          | 1984 An overview of Amateur Satellites working          |   |
| — Micro-Computer Aids to Satellite Tracking (Pt 2)        | WISGR           | WISGR  | 30 mins Colour          | 1984 Programmes for tracking & decoding telemetry       |   |
| — Using These 5 Amateur Satellites                        | WISGR           | WISGR  | 90 mins Colour          | 1984 History, constructor & use of high orbit sets.     |   |
| <b>DATA TRANSMISSION</b>                                  |                 |        |                         |   |   |
| — Lecture—RTTY  | WISGR           | WISGR  | 40 mins B&W             | 1978 Superseded (see below)                             |   |
| — Getting Started in Amateur RTTY                         |                 | WISGR  | 85 mins Colour          | 1983 RTTY using Telephones and Micro-Computers          |   |
| — Amateur Packet Radio                                    | WISGR           | WISGR  | 80 mins Colour          | 1984 Theory and Demonstration                           |   |
| <b>AMATEUR COMPUTERS</b>                                  |                 |        |                         |   |   |
| — Dame of VASRTV's Micro-Computer Controller #1           | WISGR           | WISGR  | 10 mins Colour          | 1979 First v-Computer controlled repeater in VK         |   |
| — Lecture—History of Micro-Processors                     | Pick Matthews   | WISGR  | 50 mins Colour          | 1979 Now somewhat old, still sound                      |   |
| — Understanding Micro-Processors                          |                 | WISGR  | 60 mins Colour          | 1980 A somewhat dated technical description             |   |
| — An ATV Homebuilt Micro-Computer                         | WISGR           | WISGR  | 10 mins Colour          | 1981 Describes how to makeable Micro-Computer Kit       |   |
| — Getting Started in Amateur Micro-Computers              | WISGR           | WISGR  | 33 mins Colour          | 1982 Describes of hardware & software for amateur radio |   |
| <b>AMATEUR TELEVISION—TECHNICAL</b>                       |                 |        |                         |   |   |
| — The Signal to Noise Story                               | VIC34U          | WIA    | 50 mins Colour          | 1982 Superseded by "UHF Pre-amplifiers" (see below)     |   |
| — UHF Pre-amplifiers                                      | VIC34U          | WIA    | 45 mins Colour          | 1983 Explanation and demo. of low noise preamps         |   |
| — Getting Started in Amateur Television                   | VIC34U          | WIA    | 55 mins Colour          | 1983 How to set up an ATV station                       |   |
| — Testing ATV Transmitters                                | WISGR           | WISGR  | 50 mins Colour          | 1983 How to correctly measure ATV systems               |   |
| — High Definition TV Tutorial                             | Don Ross        | WISGR  | 60 mins Colour          | 1983 A look at what is to come in broadcast TV          |   |
| — ATV Handset, York, Pennsylvania, Sept. '83              | Various         | WISGR  | 8 hrs                   | Colour 1984 Various ATV technical lectures from USA     |   |
| <b>ATMATE TELEVISION—ACTIVITY</b>                         |                 |        |                         |   |   |
| — ATV in Australia 1980/81—Made for British ATV Club      |                 | WISGR  | 60 mins Colour          | 1980 Clips from ATV Groups in VK 2,3,4,5,6,7            |   |
| — ATV in United Kingdom 1978/81                           |                 | GRIC   | 30 mins Colour          | 1981 Restake of their previous effort                   |   |
| — CQ ATV DX International 1983                            |                 | WB2LJB | 60 mins Colour          | 1983 ATV in USA and Europe                              |   |
| — ATV in Victoria, 1984                                   |                 | WB2LJB | 54 mins Colour          | 1984 Courtesy of "The Roadshow Gang"                    |   |
| <b>AMATEUR TELEVISION—GENERAL INFORMATION</b>             |                 |        |                         |   |   |
| — Low Definition Telecasts                                | Chris Long      | WISGR  | 25 mins Colour          | 1982 Re-creation of ATVs as transmitted by Baird        |   |
| — Overseas ATV Clubs About ATV, etc.                      |                 | WB2LJB | 50 mins Colour          | 1983 Broadcast TV clips from USA and Europe             |   |
| — Model Aero-Remote Mobile ATV                            | WISGR           | WISGR  | 6 mins Colour           | 1983 ATVs carried & mounted in a model airplane         |   |
| <b>INCIDENTAL</b>   |                 |        |                         |   |   |
| — An Auxiliary Battery Charger                            | WISGR           | WISGR  | 30 mins Colour          | 1981 Charging a second mode battery                     |   |
| — Lecture—Wearing Headsets                                | VIC34U          | WISGR  | 15 mins Colour          | 1981 How to be a free one who has...                    |   |
| — Home Stereo in Amateur Telecommunications               | WISGR           | WISGR  | 30 mins Colour          | 1983 Mechanical links for radio constructors            |   |
| — Computer Consequences of Nuclear War                    | Dr. John Coates | WISGR  | 60 mins Colour          | 1983 "What you can't see won't even exist if you do"    |   |
| — The Far Eastern Broadcasting Company                    |                 | WISGR  | 60 mins Colour          | 1984 A look at what is to come from Broadcast stations  |   |
| — The Australian "Over the Horizon Radar"                 |                 | WISGR  | 60 mins Colour          | 1984 How the "Australian Woodpecker" works              |   |

NOTE: © = Copyright; no copy service is available. \* = Optically Converted to PAL from NTSC by WB2LJB; some flicker evident

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**WIA 75th  
ANNIVERSARY  
STICKERS**

## WIA VIDEO TAPE LIBRARY

John Ingham VK5KG, Federal Video Tape Co-ordinator, now has some new equipment which will enable him to provide a much improved quality service, so all are urged to make use of this excellent facility.

Remember BETA format is available as well as VHS.



# OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

## WE USE THEM

Without wishing to take sides in the current debate regarding polarity standards for Capital 495 plugs and sockets, would like to advise that these fittings are used by the West Australian State Emergency Service for the connection of transceivers in their vehicles. The standard used by this Authority is **POSITIVE** on the vertical pin of the T.

E F Davies VK6ED  
32 Dorset Street  
Busselton, WA. 6280  
AB

## FUSING ERROR

am referring to the generally excellent article "Electrical Safety in the Amateur's Shack" by Fred McConnell VK3BOU, published in the May issue of "Amateur Rad d".

Unfortunately there is a potentially quite dangerous error in the reference to fusing, Par 6(b):

The SAA Wiring Rules explicitly prohibit fusing of the neutral. The wording of Rule 2 16.2, in my 1976 edit on AS 3000 reads "No fuse or unlinked switch shall be inserted in the neutral conductor".

The reason for this provision is clear. If a neutral fuse should happen to blow before the active fuse the equipment concerned will remain active to earth while probably not working and appearing safe.

The only way in which the neutral may be opened by a protective device is the use of a linked switch or thermal device which opens both the neutral and active connection on a simultaneous basis.

Obviously, any circuit installed by a licensed electrician will never have a fused neutral.

With best 73

George Cranby VK3GI,  
PO Box 22,  
Woodend, Vic. 3442  
AB

## FURTHER TO METRICS

Further to the footnote to P D Thomas' letter "No Metrics", June AR, page 60, prompts me to write about the touchy subject.

To say that our grandchildren will know nothing else is a bit wrong as I am sure any grandchildren involved in aviation engineering and any engineering units originating from the USA will be very much involved in imperial measurements.

I doubt very much whether imperial measurements will ever be displaced in manufacturing, machinery sales a long long time, particularly in smaller workshops.

Many letters were written to the magazine "Model Engineer" 15 March 1985 issue, also on this matter. Yours faithfully,

R M Foreman VK2DKG,  
42 Cambridge Avenue,  
Vaucluse, NSW. 2030.  
AR

## METRICS-YES!

I totally disagree with VK5ZP (AR June 1985 page 60) who complains about the use of metric units in amateur radio measurements. The real issue is resistance to change, but I will first comment on his reference to The Metric Conversion Act.

I have not seen that Act, but I have a copy of the Australian Government Style Manual (whose authors must have knowledge of that Act) and I quote it in part at page 73:

All references to physical quantities and measurements in Commonwealth government publications should be in terms of the metric system as defined above. Only in special circumstances (for example, direct quotations from historical documents) should other units be used.

Non government publications need not follow the

above guidelines, and individuals should do what they must.

I was born in VU2, which adopted metrics and decimal currency in 1957. I was only 5 then, so my education to university level in 1973 was based on metrics and decimal currency. For many years to the day, my elders expressed courage in Annas, weight in pounds, and distance in miles. Our automobile was calibrated in miles, so I found it easier to estimate miles than kilometres, but felt comfortable with metrics for scholastic exercises. In 1973 I migrated to ZL, where I had a brief encounter with pre-metric days and had to learn all about punts, stones, pebbles, rocks etc. Then ZL and VK went metric, and the old timers have not yet stopped whingeing. Resistance to change is visible in the form of emotive letters to editors, absurd metric abbreviations eg MTRS, KPH, KLMS per LTR etc.

I get emotional when I see a British Dominion and supposedly English-speaking country (Australia) where North American influence (imitation) is stronger than is admitted. I cringe when I hear words like "dance", "chance" etc pronounced the American way. I have not discovered why some Australian publications use American spellings some of the time eg "Labor" and "Color" but not "Tire" (car tyre) or "Aluminum". The Americans do not use metrics, but we seem to like their pronunciation of "kilometer"! I am fuzzy about correct spelling (the British way), and my blood pressure goes up when editors and proof-readers cannot spell, and when newscasters disregard grammar. People tell me that language is dynamic, and cannot be bound by rigid rules, whereas I prefer consistency. I too like to believe that I am "sensible and practical". Why do people complain that many to today's youth and even some teachers often cannot spell?

So dear Mr Thomas, many non-English-speaking nations have survived quite nicely without the advantage of Imperial units. Why not imitate them for a change? The Americans are slowly making compulsory the wearing of seat belts and motorcycle helmets, and one day they may change to metrics. The editor has already explained to you that metrics are easy to manipulate. Don't confuse our kids further, and perhaps direct your energies towards an Australian language that does not change with the tide. Then when you are on the air on six and a half feet, I'll come up on two metres, and we can have a good blue

73,  
Ash Nallawalla ZL4LM/VK3CIT  
PO Box 539  
Werribee, Vic. 3030

complain when nobody else wants to be p... The real secret is to find out how it will be accepted by the people they are going to ask to ass st. If the response is zero, and they st want to go ahead then cut it down to an event that they or their group can handle. This seems to me to be fairly logical! I know most of the replies will be "If we don't put these shows on, who will know about amateur radio?" My reply would be, "If a person really wants to know about amateur radio he will find out, come hell or high water". When it comes to the recruitment of new amateurs the legalisation of CB was probably the biggest and best boost amateur radio has ever had and will ever get

Yours sincerely,

John C Eastaugh VK5GY,  
77 Green Road,  
Modbury Heights, SA 5092

## MAKE MORE USE OF AR

I wish to thank the Victorian Division for the second prize award in the annual Kinneir trophy prizes and 1 congratulate the other prizewinners.

My thanks also to the editor of AR for his encouragement and acceptance of my contributions for publication.

The two main subjects I chose for my papers — amateur satellites and helical aerials, were new to me and I wanted to learn about them. I believe the best way to learn and understand a subject is to discuss it with others, experiment and then write about it.

AR magazine is an excellent vehicle for papers from amateur radio experimenters and we should make more use of it for that purpose. Contributing a paper improves our own understanding of the art and helps others.

My thanks also to Rex VK3VN for triggering the interest inicals and to Maurie VK5ZL for useful information about plotting satellite orbits and great circle tracks.

Yours sincerely,  
Lindsay Lawless VK3ANJ  
Box 112,  
Lakes Entrance, Vic. 3900

## HISTORY!

Congratulations to the WIA on completing 75 years of valuable service to amateur radio in Australia.

Although I have only been a member since retiring from a working lifetime in telecommunications, I have had an interest in amateur radio since the mid 1920s and like Edgar VK7RY (AR June) reached 75 years this year on 5 July.

Since becoming involved in telecommunications in 1928 I have been privileged to see, and be involved in, many of the advances and changing techniques in the art and it has been evident that amateurs have been in the forefront of change, bringing about many improvements — the use of HF early DX working with the UK and USA, the use of VHF etc etc all encouraged by the WIA.

Many thanks WIA, for your co-ordination of amateur radio affairs, through the enthusiasm and hard work of members, and for the camaraderie of amateurs which the WIA has fostered so successfully.

73 and long life to the WIA

John Weir, VK4KJW,  
100 Wrigley Street,  
Maroochydore, Qld. 4558

AR

## "ATV SHOP WINDOW"

Congratulations to the Western Suburbs Radio Club (VIC) for making such excellent use of one of amateur radio's best public relations and technical training machines — the 50cm ATV Repeater.

The recent telecast of a lecture on Packet Radio

and the announcement of further programming, indicates this is one club which is really looking to the future.

Melbourne's excellent 50cm ATU repeater, which is accessible on any commercial UHF television receiver (Ch 34), is without doubt one of our best shop windows. Unlike in-band ATU, one needs no special gear; everyone can view this full and comprehensive system on a regular lounge TV or VCR.

Technological change is fast, the Amateur Service must keep up. We must make full and efficient use of such excellent educational facilities as 50cm ATU.

We have the technology — programme product on and promotions is all that is required — "Go to Western Suburbs!"

Best Wishes

Tony Tregale VK3QQ,  
38 Wattle Drive,  
Watsonia Vic 3087

AB

of the Department of Defence.

Furthermore, the Department as a whole could be expected to consistently implement the policies laid down by the Federal Government. I can see no reason why this situation should change. To suggest otherwise would be considered to be a blamist and constitutes what I believe to be a most dishonest attempt to create sensationalism.

Naturally one would expect the situation to be totally different in the event of an outbreak of war of a general nature which included our country and we could expect that our amateur stations would be closed down as has happened in the past.

Finally, I would like to make it quite clear that this letter is written by me as both an amateur radio operator and an individual and private citizen and should not in any way be construed as an official comment from an officer of the Commonwealth.

Ian J Hunt VK5XQX  
8 Dexter Drive,  
Salisbury East, SA 5109

them that, family matters permitting, I will be available to ensure the smooth change over to the new QSL manager.

Ray Dobson VK5DI,  
16 Howden Road,  
Fulham, S.A. 5024  
AB

## CORRECTION

The caption to the photograph at the foot of page 30 — July AR was incorrect.

The operator on duty at the Melbourne All Models Exhibition in 1985 was Graham Sutherland VK3ZAA. He was in contact with David Rankin VK3ZAQ (now VK3QV), when I took the photo.

73  
Alan Elliott VK3AL (ex VK3ZBE),  
334 Dorcas Street,  
South Melbourne, Vic. 3205.

AR

## THANKS FOR AMATEUR RADIO DISPLAY

Thanks to the fine effort of Des VK3DES for the display at the Philatelic Sale Room of the Elizabeth Street Post Office during the sales of the First Day Cover celebrating the 75th Anniversary of amateur radio.

We are grateful also to Mr Ray Bowthorpe, manager of that section, for his kind assistance.

Yours faithfully,

C J Pope, VK3DPO,  
23 Ayr Street,  
Doncaster, Vic.

■

## ELECTRICAL SAFETY

I read, with interest, the article in AR, May 85, page 31 "Electrical Safety in the Amateur Shack" and believe that an important factor has been omitted from the article.

Firstly let me state that I am no expert in these matters, just a simple hobbyist, however this is what I understand.

The core balance earth leakage protection is OK when in the main switchboard or the sub-mains to the shack, providing the appliance being used is transformerless, eg electric irons, toasters, etc, but when the appliance has a transformer (as suggested in 6(c)) the CBEL provides protection only on the primary side of the system and NO PROTECTION AT ALL on the secondary side of the transformer — and it is in this area that many radio amateurs will be probing.

If the above very brief explanation is sufficient to outline the point I am trying to make and which I

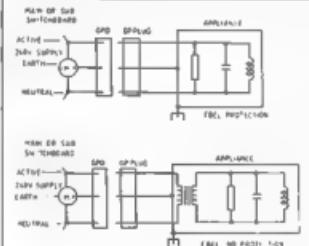


Figure 1

believe is important in the context of safety, then a clear warning to this effect should be included in any description of CBEL.

73,

Colin Heath, VK5FX,  
33 Braund Road,  
Prospect, SA 5082

image analysis is now available for use with any microcomputer which has high resolution graphics and an 8 bit parallel port at no more than the cost of the microcomputer itself, thanks to a vision system developed by a British manufacturer.

The basic system called Microsight 1, uses a standard closed circuit television camera to capture images, passing them through a special interface and transferring the data as 8 x 10 bit grey scale video signals. The microcomputer's RAM stores the captured image in monochrome and the software can be used for simple mapping and object recognition.

With addition of Microsight 1 it is possible to input pictures of televisions on quality and store them on disk. The further addition of Microsight software allows enhancement of picture data, measurement of defined areas of the picture thus providing CAD type facilities.

The software is available for BBC, Apple, Commodore, Sirius and other popular microcomputers. From New Technology in Britain AR

## QSL BUREAU

Please note that I am handing over control of the VK5 QSL Bureau to John Gough VK5SQD with effect from 1st June 1985.

The Bureau will continue to operate as it has done in the past and provide the usual service for WIA members at the monthly meetings.

The new address of the Bureau will be VK5 QSL Bureau, John Gough VK5SQD, Post Office, Williamstown, S.A. 5351.

I wish to thank my fellow amateurs for their help and co-operation during the last five years and assure

## ADDENDUM to May AR . . .

Page 18, col 3, line 13 says "narrow band width" should read "narrow beam widths".

Same col and page, 16 lines from the bottom "distance EC more" should read "distance BC more".

Whenever a  $\checkmark$  sign appears it applies to the whole line not just the first term.

# Silent Keys

It is with deep regret we record the passing of —

MR ALFRED JOSEPH BARNES VK2CE  
04.06.85  
MR C FORDHAM VK5JQ  
MR D GRIFFIN WARWICKE LI0002  
MR R J SCOTT VK5RU  
MR F J STEPHENS VK1FS  
MR MILES UPTON VK3AMU  
26.05.85  
MR M VAN DYKE VK5NVQ

## Obituaries

### ALFRED JOSEPH BARNES VK2CE

Alf, formerly of Eastern Suburbs, for the last 30 years in Telopea, passed away at "Little Stewart Hospital" on Tuesday 4th June 1985.

Alf was in his 77th year first became interested in amateur radio at the early age of 16. After getting his amateur licence he experimented on many projects, and one project that had many people thinking was one called "The Barnes Mystery Circuit".

Over the years Alf has aided and assisted a great number of people that are interested in amateur radio, both in getting their licence, and building projects. He was always there when someone wanted assistance. The hand of friendship was always extended to assist his fellow man.

Alf VK2CE, "Charlie Echo" — That call will be missed by a great number of people throughout the world, especially by his close mates and friends.

Alf is survived by his loving wife Kath and family, to whom we offer condolences.

Ron Jones VK2VND

### PETER COHN VK1KPC

Monday the 6th of May marked a sad day for many amateurs, friends and associates of Peter Cohn VK1KPC, who passed away suddenly.

Peter will be missed by those who knew him at the Honeysuckle Creek Tracking Station, the computer section of the Government Printer's Office, the ANU School Computer Unit of the Research School of Physical Sciences, and by those who knew him as a hobbyist on the VHF bands, with WICEN, or in forums on 2 metres.

But Peter was more than that. His friends and interests spanned the technical, the bushwalking groups, the mountaineers, and the performing arts.

A service in his memory in Canberra brought together a truly large gathering of those people whose ambassador Peter was. We knew of the diversity of his life, although few of us had any inkling of those that were his confidants in other fields. He promoted each of his dedications. He always spoke well of his fellows, and he joined us all with his sense of humour and his warm and gregarious nature.

What we did not realise, is that there was one more diversity to his life. It was a sadness which he did not share, for he held no brief in such matters.

Farewell young and dear friend.

George Brasztowki (VK1GIG) and Dick Elliott (VK3ZAH) for the VK3 Division.

Alf

### GEOFFREY SAINT COOMBE VK5ML 5 April 1985

Radio was Geoffrey's hobby, and had been so, since his early teens.

Of his school friends with the same inclinations, he was the first to obtain his operators licence, his call sign was VK5ML.

During his time, he contacted most countries of the world, both on phone and Morse code, the Morse being a great love, and one in which he was particularly proficient.

He was not only an operator, but also a practical constructor, and one of his early home made transmitters is a heritage item preserved in the museum of the Wireless Institute of Australia.

Over the years, there developed a group with whom he regularly spoke, but of late, could only listen.

Geoffrey will be sadly missed by his many friends.

In amateur radio language, Geoffrey is QRT, which simply means, he has closed his station down.

Basil Rogers VK3ABF

MM

### MILES UPTON VK3AMU

It is sad to report the passing of Miles, in Box Hill Hospital on 26th May 1985.

Miles moved to Queensland approximately seven years ago and held the call sign VK3AMU, but he returned to Melbourne three months prior to his death.

Miles is survived by his wife Jo, to whom we extend our deepest sympathy.

Ron Higginbotham VK3JHN

MM



### SILENT KEYS: LEUKAEMIA MORTALITY IN AMATEUR RADIO OPERATORS

Sir — In 1982 I reported increased mortality due to leukaemia in men whose death-certificate occupation suggested exposure to electrical and/or magnetic fields.<sup>1</sup> Similar findings have been reported by others.<sup>2-4</sup> An amateur radio operator (Andrew R Sabot W2EVE) wrote to me suggesting that I study mortality in members of the American Radio Relay League, a group of amateur radio operators exposed during their hobby to electromagnetic fields.

Recent deaths of members, with City and State, are reported in the "silent keys" section of *QST*, the league's monthly magazine. For 1971-83, there were 296 male deaths listed for Washington State and 1642 listed for California. Death certificates were obtained for 280 (95%) the Washington State deaths and age, date, and cause of death information was obtained for 1411 (86%) of the California deaths. A proportionate mortality ratio (PMR) programme<sup>5</sup> was used to analyse the 1981 male deaths in the two States.

The table shows an increased PMR for the leukemias, limited to myeloid (8th ICD 205) and unspecified (ICD 207) leukaemia. Lymphatic (ICD 204) and monocytic (ICD 206) leukemias show no excess. This difference by cell type may have happened by chance, but it is unlikely to have resulted from any bias inherent in proportionate mortality analysis. Studies in the USA<sup>2</sup> and UK<sup>3,4</sup> also revealed a tendency toward a relative increase in the acute myelogenous type of leukaemia in electrical workers.

There is a strong association between employment in occupations with exposure to electromagnetic fields and membership in the American Radio Relay League. 97 of the 280 (35%) Washington State "silent keys" death records listed occupations such as elec-

### ANALYSIS OF LEUKAEMIA DEATHS IN MALE MEMBERS OF THE AMERICAN RADIO RELAY LEAGUE RESIDENT IN WASHINGTON AND CALIFORNIA, 1971-83

| Cause of death (ICD 8) | Observed | Expected* | PMR            |
|------------------------|----------|-----------|----------------|
| All causes             | 1091     | 1891      | 100            |
| All leukemias (204-07) | 34       | 12.6      | 104 (p < 0.01) |
| Myeloid (205)          | 3        | 3.3       | 93             |
| Chronic (204.5)        | 2        | 1.1       | 143            |
| Monocytic (206)        | 10       | 5.7       | 281 (p < 0.01) |
| Acute (205.0)          | 11       | 3.8       | 285 (p < 0.01) |
| Unspecified (207)      | 4        | 1.5       | 267 (p < 0.01) |
| Monocytic (206)        | 0        | 0.4       | 0              |
| Unspecified (207)      | 5        | 2.7       | 183            |

\*Expected deaths for leukemias generated using 1976 JS age-specific white male death frequencies by decimal ICD number and a single proportional model.

tronics technician, electrician and radio operator, while these occupations account for only 3% of male deaths in the Washington State death file.<sup>6</sup> The PMR due to leukaemia (ICD 204-207) in Washington State amateur radio operators was 21 (2 deaths observed, 0.76 expected) in those who worked in electromagnetic-exposure occupations and 210 (3 deaths observed, 1.4 expected) in those who worked in all other occupations. Occupational exposure alone, therefore, probably does not explain the leukaemia excess in these men.

These findings offer some further support for the hypothesis that electromagnetic fields are carcinogenic.

Supported in part by the National Institute of Occupational Safety and Health, Epidemiology Section, Division of Health, Department of Social and Health Services, Washington 98504, USA

SAMUEL MULHAN JR

1. Milleham SJ. Mortality from leukaemia in workers exposed to electrical and magnetic fields. *Br Eng J Med* 1982; 307: 249.

2. Wright WE, Peters JH, Mack TM. Leukaemia in workers exposed to electrical and magnetic fields. *Lancet* 1982; ii: 1190-51.

3. McDowell ME. Leukaemia mortality in electrical workers in England and Wales. *Lancet* 1983; i: 243.

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5. Milleham SJ. Analysis of proportional and proportional mortality. *Comput Biomed Res* 1977; 7: 325-32.

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## GET ON THE BANDWAGON?

When Jakarta police swooped on a group of smugglers off-load a plane from Singapore in the wee small hours recently, they received quite a shock. Instead of finding quantities of electronic goods, probably video, they found a large number of walkie-talkies and amateur radios to feed the city's latest whim.

As most are unlicensed it is difficult to tell how many operators there are in Indonesia but it is believed to be around one million. It is a status symbol to be able to operate with a proper call sign in Jakarta but many are too busy to sit for the ITU exams so they PAY for their licenses instead, whilst others just go without complete y.

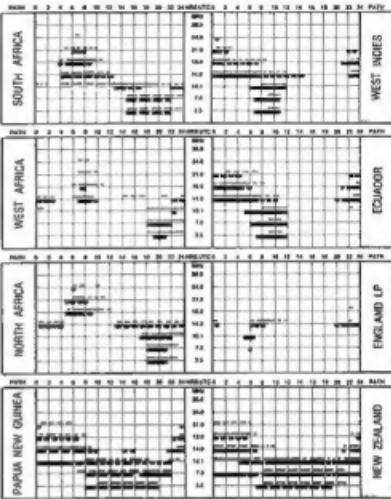
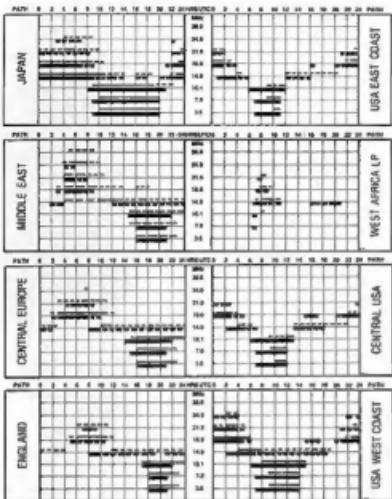
Amateur radio was granted by Government Regulations in 1967, however a boom started in 1981 with many using smuggled base stations and handhelds. At first many were happy to use the CB channels, however these soon became overcrowded and any clear wave lengths are now used including amateur frequencies and sea and air navigation on bands.

From information supplied by Neville Lucy VK2ZN

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Up = long path of up to 10000 km  
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Rong = represented country or the  
Department of Science and Technology,  
Geophysical Prediction Service, Sydney  
All times in UTC

## 75th Nostalgia:



This equipment was set up as part of the Port Macquarie 'Carnival of Pines' in 1954. On the left is the station of Ted VK2AVG (now VK4YG). The transmitter is an ART13 with an American National HRO receiver. Under the bench are large power supplies needed to drive the equipment. To the right is the equipment of Peter VK2PA (the winner of the WIA's 75th CW Contest). This equipment consists of a Homecraft test kit CRO, an A2RTB and an STC AMR-300 communications receiver. Above the AMR-300 is a converted Bendix transmitter. Amateur Radios line the extreme right-hand side of the photo.

Photograph published in 'Oztales', May 1985. Courtesy Peter Alexander VK2PA and R O'Connell VK2BFP.

## NOTICE



ALL copy for inclusion in October 1985  
Amateur Radio must arrive at Box 300,  
Caulfield South, Vic. 3162 no later than  
midday 21st August.

## HAMADS

**PLEASE NOTE:** If you are advertising items **FOR SALE** and **WANTED** please write each on separate sheets, including **ALL** details, eg Name, Address, on both. Please write **copy** for your Hammed as clearly as possible, preferably typed.

- Please insert STD code with phone numbers when you advertise.
- Eight lines free to all WIA members. \$9 per 10 words minimum for non-members.
- Copy in typescript please, or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Reprints not charged at full rates.
- OTR means address is correct as set out in the WIA current Call Book.

Ordinary Hammeds submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is \$22.50 for four lines, plus \$2 per line (or part thereof) minimum charge \$22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

## □ TRADE □

"FROM PASTURES GREEN TO THE SILVER SCREEN" by the late John W Gordan VK3ADM, is a 20th century autobiography containing 156 episodes and 273 illustrations. The author's memories of remarkable events, exciting experiences and achievements were transferred to paper during a period of five years and make interesting reading for people of all ages. The price is \$14.95 plus \$2.50 postage and packing. Available from Mrs Marie Gerard, East Bonville Road, Bonville, NSW. 2441.

**AMIDON FERROMAGNETIC CORES** Large range for all receiver and transmitter applications. For data and price list send S.A.E. to: 2280 E. 10th, Suite 100, K.C. 68101, U.S.A. Box 157, Mortdale, NSW. 2174. (No enquiries at office). 111 Macleod Street, Oakley, Agencies at: Geoff Wood Electronics, Roseville, NSW. Truscott Electronics, Croydon, VIC. Willis Trading Co., Perth, WA.

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**AMATEURS WANTED** ... VK2AYD is interested in conducting HF tests using 1200 BPS with other amateurs interested in Packet Radio. As a tentative start he will be on 14.035 (circa 0904) every Sunday at 00:00 UTC. He is also prepared to try any other amateur band at any time, after working hours. VK2AYD, QTHR. Tel: (02) 452 5441.

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**ROTATOR HAM M** in working order or alternatively a defective unit with good upper casing. Required to replace unit with fractured upper casing. H G Tiler VK3NHH. Tel: (05) 88 8797.

**WORKSHOP MANUAL** for Comtronix FM-80 or any info relating to known faults in tx section. All costs re-imbursed. Any info welcome. Murray VK3CCG. Tel: (03) 306 5430.

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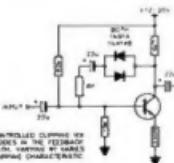
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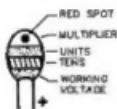
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